Volume XI.
Number 5.

NOVEMBER 1896.

$2.00 Per Year.
20 Cents per Copy.

TEXTILE WORLD

	PAGE
Oscar W. Wood (portrait)	15
The Election and its Results	19
Style Suggestions	20
Prices of Good Sellers	21
How it Works	23
The Ramie Fibre (illustrated)	25
Personal Record	28-30
Questions and Answers	31-32
Cotton Department	33
Woolen Department	41
Knitting Department	50
Power Department	58
Colors and Dyeing	65
Mill News	125-131
Yarn Department	113
Textile Patents	11
The Wool Market	127
The Cotton Market	128
Mills and Machinery For Sale	131
Situations Wanted	132

Buyers' Index, - - - Page 73.
Alphabetical Index, - - " 79.

GUILD & LORD, Publishers, 620 Atlantic Avenue, Boston, Mass.

GRANGER FOUNDRY & MACHINE CO.,

PROVIDENCE, R. I.

Bleaching, Dyeing, Drying and Finishing Machinery.

Cotton, Paper and Husk Rolls.

TENTERING MACHINES

With Patent Self-Feeding Clips.

Patent Combination Rolls

—OF—

HUSK AND COTTON.

Calenders, Mangles, Drying Machines, Tentering Machines, Hydraulic Presses, Etc.

—BEETLES—

Short and Long Chain Dyeing, Sizing and Drying Machines.

PATENT

OIL, COMBINED "PLATE and FLAME"

SINGEING MACHINES.

TENTERING MACHINES

VIBRATORY

STRAIGHT RETURN (2 to 12)

—— FOR ALL KINDS OF ——

TEXTILE FABRICS.

Clamp Chain, including Spring and Automatic, also Pin Chain.

Special Attention is called to improvements recently made in the **VIBRATORY MACHINES,** namely:

Spur gear driving in place of bevel gear (patented).

Crank plate for vibrating in centre of machine with forked rod grasping shaft at two points, giving evenness of motion and saving floor space (patented).

Sectional guides for returning chain, and adjustable bearings, to take up slackness.

CORRESPONDENCE SOLICITED.

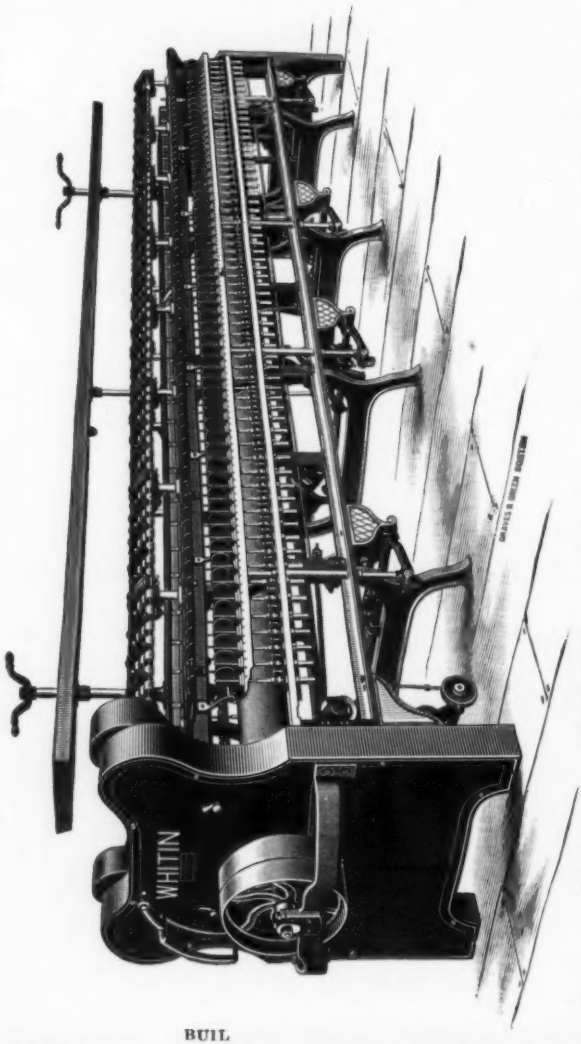
H. W. BUTTERWORTH & SONS CO.,

PHILADELPHIA, - PA.

The Whitin Machine Works,

Revolving Flat Carding Engines,
Long Chain Quilling Machines,
Wet and Dry Twisters,
Looms,

Railway Heads,
Drawing Frames,
Reels,
Spoolers.



The New Whitin Ring Spinning Frame.

BUIL

COTTON MACHINERY,

Whitinsville, Mass.

Southern Office: 38 So. Tryon St., Charlotte, N. C.
S. W. CRAMER, Southern Agent.

THIS BOBBIN

Is for use with the

NORTHROP LOOM.

The rings at the base engage a grooved spring in the shuttle, and the bobbins are automatically transferred from a hopper to the shuttle, whenever necessary.

We have made weaving automatic.

Our order list proves our success.

We only ask investigation.

Some Northern Mills

USING OR ORDERING OUR DEVICES.

Amoskeag Mfg. Co.,	4000
Queen City Cotton Co.,	852
Pacific Mills,	808
Tremont and Suffolk Mills,	536
Grosvenor Dale Co.,	335
Social Mfg. Co.,	196
Merrimack Mfg. Co.,	100
Mass. Cotton Mills,	100
Lancaster Mills,	100
Other various lots, over	1000
	8027
Southern orders filled and unfilled, over	6000

GEO. DRAPER & SONS,

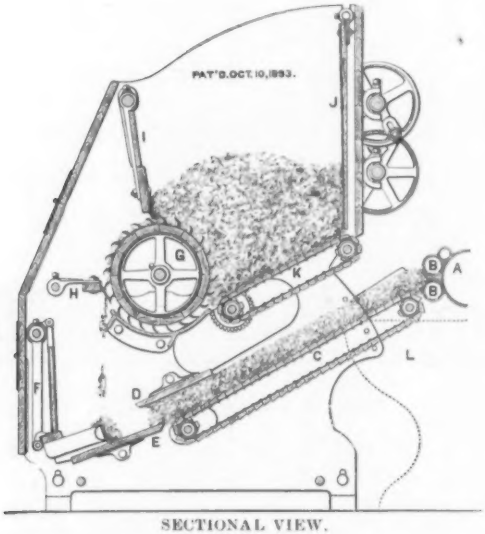
HOPEDALE, MASS.

THE FISHER CARD FEED

for WOOL, SHODDY, and COTTON, is

· · · Second to None · · ·

on the market. It holds more stock, requires less space, and needs no "attachments."



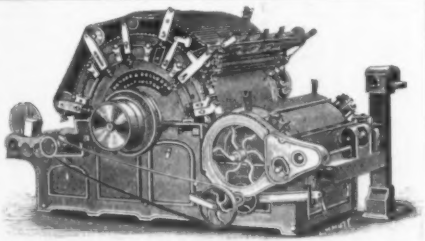
SECTIONAL VIEW.

THE FISHER CARD FEED is simple in construction, s strongly built, turns out even work, requires little changing, and feeds the same whether full or nearly empty.
It is built in all sizes and guaranteed as represented.

MANUFACTURED BY

Woonsocket Machine AND Press Co.,

WOONSOCKET, R. I.



J. C. POTTER, Pres. HOWARD & BULLOUGH C. E RILEY, Treas.

American Machine Company,

(LIMITED),

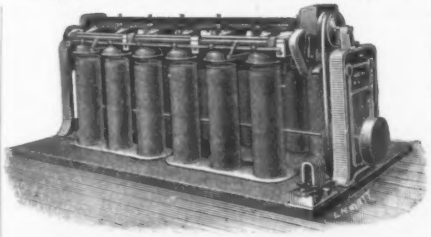
PAWTUCKET, - R. I.

Revolving Flat Cards.

The Simplest and Most Accurate. Greatest Production. Best Quality. Least Waste.

Electric Stop-Motion Drawing.

The quality of the sliver produced cannot be surpassed. Waste, "single" and roller laps are prevented, production increased, and great saving effected.



Bale Breakers, Feeders, Combined Self-Feeding Openers, Breaker and Finisher Lappers,

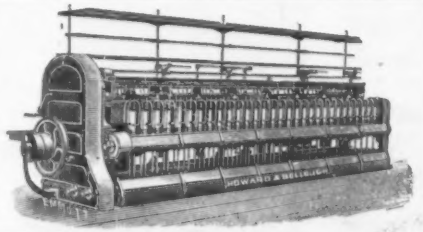
All made from entirely new patterns and containing many valuable patented improvements.

Slubbing, Intermediate, and Roving Machines.

New patented Differential motion, New Arrangement of Cone Drums, New System of Balancing top or bobbin rail, etc.

All parts of above machines are made by special tools and are exact duplicates.

Correspondence Solicited. Send for Descriptive Catalogue.



COTTON OPENERS AND LAPPERS

Atherton Machine Co. LOWELL MASS.

Knowles Loom Works

MANUFACTURE JACQUARDS, DOBBIES,

Looms of every description

FANCY WEAVING WORCESTER, MASS.

5 Awards at Worlds Fair.

PARKHURST BURR PICKERS

FOR CLEANING EFFECTUALLY WOOL OR COTTON.

Improved MIXING PICKERS

And Picker Feeds.

Steel Ring Burring Machine Cylinders and Feed Rolls a Specialty.

The Sutton Improved Side Drawing Machine. Write for Circulars.

ATLAS MANUFACTURING CO., - - NEWARK, N. J.

CARDS, DRAWING

SPINNING FRAMES

MASON MACHINE WORKS

COTTON MACHINERY,

TAUNTON, MASS.

MULES

LOOMS

THOS. J. HILL, Pres. and Treas. M. C. PIERCE, Supt. and Sec'y

Providence Machine Co.,

MANUFACTURERS OF

Improved Cotton and Worsted Roving Machines,

Cotton Combers and Lap Winders, Worsted Spinning Frames and Twisters, Fluted Rolls, Flyers, Spindles, Gears, Bolsters, Caps, Tubes, Etc., Etc.

564 EDDY ST., PROVIDENCE, R. I.

ELIJAH ASHWORTH,

Inventor and Maker of the Patent Non-Flexible Bend

Revolving Flat Carding Engine.

Patent Flattened Wire Cards; Heat Hardened and Tempered Steel Cards;
"Special Needle-Pointed," "Plough Ground Cards."

Card Clothing of Every Description.

FACTORIES: { Fall River, Mass. / Manchester, England. HENRY ASHWORTH, Agent.

J. B. PARKER MACHINE CO.

—MANUFACTURERS OF—

The Bancroft Mule, The Clinton Yarn Twister,
The Murdock Drop Wire Stop Motion for Warpers.

CLINTON. - - - MASS.

FACTORIES:
LEICESTER, MASS.
WORCESTER, MASS.
PHILADELPHIA, PA.
PROVIDENCE, R.I.
NO. ANDOVER, MASS.
WALPOLE, MASS.
LAWRENCE, MASS.
LOWELL, MASS.
MANCHESTER, N.H.

AMERICAN
Card Clothing Co

MANUFACTURERS OF CARD CLOTHING OF EVERY DESCRIPTION.
SURFACE GROUND OR NEEDLE POINT.

Estimates Given & Orders Filled Promptly at each Factory

OFFICE: KNOWLES BLDG.
WORCESTER, MASS.

CURTIS & MARBLE MACHINE CO.,

MANUFACTURERS OF

Wool Burring, Picking and Mixing Machinery.

Cloth Finishing Machinery

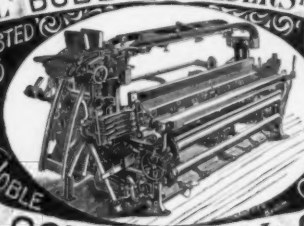
FOR COTTON, WOOLEN, WORSTED, PLUSH GOODS, ETC.
SHEARING MACHINES A SPECIALTY.

Send for New Descriptive Catalogue.
Office and Works at Webster Square, **WORCESTER, MASS.**

CROMPTON LOOM WORKS

ORIGINAL FANCY LOOM DOBBY BUILDERS IN AMERICA

FANCY WOOLEN & WORSTED CLOSE SHED LOOMS.

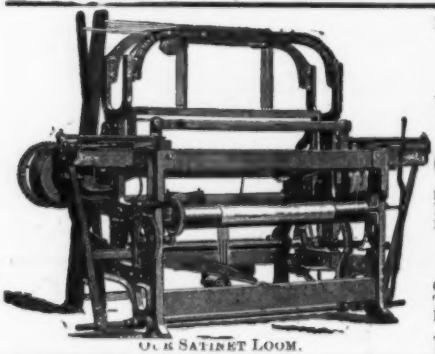


FANCY COTTON, GINGHAM, SILK & CARPET LOOMS.

NOBLE COMBS

POWER LOOMS OF ALL GRADES.

WORCESTER, MASS. U.S.A.



Old SATINET LOOM.

Established 1866. Incorporated 1894.

GILBERT LOOM CO.,

Worcester, - Mass.

Manufacturers of Improved

Open Shed Full Fancy Looms

for weaving Worsteds, Woolens and Dress goods. Positive Open Shed Dobby for light or heavy weaving.

Satinets, Jeans, Flannels,

Cane, Wire, Duck and Gunny Looms, Tapestry, Brussels Looms, Printing Drums and Sitting Frames.

180 to 186 Union and 33 North Foster Street.

CHAS. W. GESSLER, Prop.

NOVELTY LOOM PICKER WORKS,

MANUFACTURERS OF

Loom Pickers

OF EVERY DESCRIPTION.

Our New Works and Office - - -

3-5-7 South 48th Street, Philadelphia.

Our Name on Every Picker.

Textile Machinery.

Openers and Pickers. **Revolving Top Flat Cards.**

Drawing, Slubbing, Intermediate, and Roving Frames.

Spool Thread Machinery. **Self-Acting Mules.**

McKERROW & BENNETT,

Sole Agents in U. S. and Canada for

Tweedales & Smalley, England. **Richard Threlfall, England.**

Wm. Ayrton & Co., England.

"VERVIERS" Paper Tubes for COTTON, WOOLEN, WORSTED, AND SILK SPINNING.

Worthington Building, 31 State St., Boston, Mass.

SACO WATER POWER MACHINE SHOP,

Cotton Machinery,

BIDDEFORD, - MAINE.

PLATT BROS. & CO.'S

REVOLVING FLAT CARDING ENGINES,

"1894" pattern with Patent Flexible Bend with slots for direct setting of the flats to the cylinder by the gauge, and McConnell & Higginson's Patent Grinding Apparatus for grinding the flats from their working surfaces.

Sykes' Hardened and Tempered Plow Ground Polished Steel Wire Card Clothing.

EVAN ARTHUR LEIGH, Successor to E. A. Leigh & Co., (Sole Agent),
35 and 36 MASON BUILDING, BOSTON.

ESTABLISHED 1865.

W. W. ALTEMUS & SON,

Patent Bobbin and Cop Winders, Spoolers, Beamers, Warp Mills,

Chenille Cutting, Carpet Rolling Machines, Reels, Etc.

2816 N. 4th Street, - PHILADELPHIA, PA.

YOU CAN SAVE

ONE MAN'S PROFIT
BY ORDERING YOUR

STEAM SUPPLIES

DIRECT FROM THE MANUFACTURER

Our Line of

Valves, Cocks, Engineers' Tools

and Supplies are strictly High Grade, and invariably give satisfaction. You can order from our Illustrated Catalogue at a material saving in time, money and attention; also with the certainty of getting the very best goods in the market. If you do your own steam-fitting about the mill, we can be of good service to you.

STANDARD WROUGHT IRON PIPE

JOHN SIMMONS CO.

106-110 Centre St., NEW YORK.

International Safety Solvent Co.

Incorporated 1895. Capital, $500,000.

DEGREASING of WOOL

BY THE

New Safety Solvent Process.

SOAP AND ALKALI DISPENSED WITH.

Stronger, Cleaner, Softer Wool, and an Increased Yield of Clean Fibre Guaranteed.

Estimates, Specifications, Plans and Drawings furnished on application.

Plants Contracted for, Erected and Started.

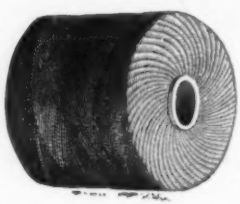
Patented in the United States, Canada, Great Britain, France, Germany, Belgium, Austria Hungary, Russia, Argentine Republic, Uruguay, Cape Colony, New South Wales, New Zea and, Queensland, South Australia, Tasmania, Victoria, and Western Australia.

EMILE MAERTENS, President and Treasurer,

P. O. Box 1002. - 49 Westminster St., PROVIDENCE, R.I.

UNIVERSAL WINDING COMPANY.

YARN MANUFACTURERS will advance their interests



By investigating OUR PROCESS OF WINDING.

HIGHEST AWARD at the World's Fair, Chicago, for new system of winding and also on special machines.

GOLD MEDAL awarded at the Mechanics' Fair Boston, 1895.

In their report the judges say:—"This machine develops an entirely new system of winding, by which threads and twines are prepared in the most compact compass for the market, also shows greater advance in the transfer process than has heretofore been accomplished. This new method of winding subjects the thread to no severe strain, and leaves it in the best condition for use." They also say that they consider the Universal is the greatest single advance shown in any department of our group, being *a completed development of a new system*, and thus entitled to the highest award.

F. H. BISHOP, - Manager,

226 Devonshire Street, Boston, Mass.

PATENTS

CROSBY & GREGORY,
34 SCHOOL STREET.

Telephone 3593, Boston. **Office Established 1854.** Cable address Aniline.

George W. Gregory, in November, 1874, resigned his position as Principal Examiner U. S. Patent Office to enter the firm.

Patents secured in the United States and all other countries, Reissues obtained. Interferences conducted. Suits brought and defended for infringement, and searches made as to the validity of patents. Prepared to give special and expert attention to cases involving knowledge of cotton, wool, leather and metal working machinery, including boots and shoes and electrical, chemical and metallurgical inventions and steam engineering Correspondence solicited. No charge for preliminary advice. Personal consultation best when possible.

HOPEDALE, Mass., January 2d, 1893.

Mr. George W. Gregory, of Crosby and Gregory, has taken out for us since January, 1875, more than two hundred patents. GEO. DRAPER & SONS.

List of Textile Patents Issued October, 1896.

Specifications and drawings furnished for fifteen cents each. Address W. S. Gavey, P. O. Box 222, Brooklyn, N. Y.

Alizarine Dye and Making Same. 569,404. R. Brasch, Höchst-on-Main, Germany.

Apparatus for Assembling Spindle blades and whirls. 570,375. G. M. Burgess, Hopedale, Mass., assignor to Hopedale Machine Co.

Apparatus for Dyeing Skeins. 569,453. W. J. Gleason and J. H. Bower, Phila, Pa.

Automatic Circular Knitting Machine. 269,701. A. Wrightson, Phila., Pa.

Circular Knitting Device. 569,463. D. Minich, Phila., Pa.

Cloth Evening Device. 569,586. J. H. Northrop, Hopedale, Mass.

Cloth Singeing Apparatus. 569,159. J. R. Manton, Providence, R. I.

Comb Dabbing Mechanism. 570,095. T. W. Hickey, Worcester, Mass.

Device for Drying Textile Fabrics (hosiery). 568,874. C. Pease, Hillsborough, N. H.

Endless Tubular Fabric. 570,137. G. C. Moore, Worcester, Mass.

Knitting Machine. 569,347. P. Persson, Stockholm, Sweden.

Knitting Machine. 570,059. J. E. Rowe, Pawtucket, R. I., assignor to E. Jenckes Mfg. Co.

Knitting Machine. 570,335. J. G. Powell, Phila., Pa.

Knitting Machine Stop Motion. 569,324. S. Creager, Hagerstown, Ind.

Lappet Loom. 570,259 and 570,260. J. R. MacColl, Pawtucket, R. I.

Loom. 569,805. O. Smith, Bridgeton, N. J., assignor one-half Geo. Draper & Sons.

Loom. 270,234. C. Seybold, Zweibrücken, Germany.

Loom for Weaving Pile Fabrics. 569,814. C. Coupland and F. Pearson, Seymour, Conn.

Loom Heddle. 569,149. G. O. Draper, Hopedale, Mass.

Loom Let-off Mechanism. 569,865. A. A. Forbes, St. Hyacinthe, Canada.

Loom Picker Strap Dog. 569,570. P. Ashby, Valley Falls, R. I., assignor to Whitin Machine Works, Whitinsville, Mass.

Loom Reed. 570,381. J. A. & C. Clark, Worcester, Mass., assignor to Crompton Loom Works.

Loom Shuttle. 568,929. W. Todd, Paterson, N. J.

Loom Shuttle. 599,721. T. Morrison, Williamsport, Pa.

Machine for Knitting Fleece Lined hose. 569,702. A. Wrightson, Phila., Pa.

Means for Treating Woven Fabrics. 569,015. C. Crossley, Sudbury, England.

Ring Spinning Frame Separator. 570,423. H. W. Baker, Hopedale, Mass.

Rocker and Shoe Connection for loom picker sticks. 570,364. A. Barselon, Cohoes, N. Y.

Self-Threading Loom Shuttle. 569,862. W. F. Draper and J. H. Northrop, Hopedale, Mass.

Shuttle Threader. 569,853. R. Brodeur, Fall River, Mass.

Spinning Machine. 570,409. J. T. Meats, Taunton, Mass., assignor to Mason Machine Works.

Swivel Loom. 570,359. H. Willmunder, Phila, Pa.

Wool Washing Machine. 569,980. F. G. & A. C. Sargent, Graniteville, Mass.

Woven Bag. 570,174. J. A. Knight, Enfield, R. I.

Seamless Hosiery.

The finest and best Knit Fabrics for any purpose, are made on

Spring Beard Needles.

There is only one Seamless Knitting .. Machine using Spring Beard Needles . . . .

Superior to all other machines in

Simplicity,
Durability,
Large Product,
Fine Gauges,

Superiority of Fabric,

And as a Money-Maker.

THOROUGH INVESTIGATION INVITED.

Full information may be had by applying to the builders . . .

National Automatic Knitter COMPANY,

724-26-28 Cherry St., PHILADELPHIA.

Imports of Cotton Yarns to the United States from Manchester.

Exports of cotton yarns, including rovings, thread, and harness twine, shipped from the consular district of Manchester to the United States during the half-year ended June 30, 1896.

Description and Count.	*Lb.*
Miscellaneous thread, etc.	5,602½
Harness twine	4,146
Rovings	292,377
10	1,300
3-20	1,236½
4-24	2,273
4-27	1,066½
30	2,092½
2-36	1,000
2-40	4,169
2-45	1,889½
50	21,376½
2-50	2,510
4-50	1,095
2-55	15,402½
4-55	1,953½
60	21,139
2-60	64,723½
70	5,700
2-70	65,334½
75	24,818½
2-75	1,305
80	16,536
2-80	64,987½
83	6,540
90	23,615½
2-90	2,780
95	9,647
100	26,871½
2-100	59,406
105	2,072
110	6,849
2-110	3,122½
2-120	5,616
130	1 078
140	3,005
2-145	1,593
All other counts	16,764½
Total	792,994½

During January the total exports amounted to 174,151 lbs.; in February the quantity was 155,673 lbs., and in March 141,571 lbs. The total for April was 107,473 lbs.; for May 121,641 lbs., and for June 92,484 lbs. It will be observed that the largest trade is in 64's, 65's, 80's and 100's, two ply.

York Mills' Help Satisfied.

There has been, at the York Mills, in Saco, Me., an under current of uneasiness among the operatives for some time past, if we credit the local papers, and some of the labor leaders. A new order of things has come into effect under Agent Page. When the mill started up in October, after their long shut down, a new scale of wages was instituted, and the employees were required to sign a contract. There were loud protestations, at the time, that the scale was not one under which living wages could be made. It seemed to us at the time that the scale was an eminently fair one, and that competent operatives would be enabled to do fully as well, and better than under the old system.

The first pay day came the latter part of October, and as Agent Page had prophesied, when the new scale went into effect, many operatives found that they had received really better pay than they expected. A few found cause for complaint, but they were lost amid the majority, who were really pleasantly surprised at the contents of their envelopes.

When a new man takes hold of a big corporation like the York and begins to institute changes, there is always a cry from those who can see no good in anything new. Agent Page is an able mill man, and under his efficient management we look to see the York prosper as of old.

OSCAR W WOOD

TEXTILE WORLD.

Vol. XI. NOVEMBER, 1896. No. 5

OSCAR W. WOOD.

At a time when public speakers and a portion of the press are engaged in teaching doctrines calculated to array the thriftless against the well-to-do, it is at once a proof of the falseness of their statements and a relief from the nightmare which they cause, to recall another of the many instances where a man has risen from the ranks of labor to the position of a leader of an industry. A native born American who had the integrity, courage and perseverance, to so conduct himself in the humbler walks of life as to make his advancement a necessity, we present to our readers the portrait of Oscar W. Wood, treasurer and manager of the Germantown Spinning Co., of Philadelphia.

Mr. Wood was born in the city of Philadelphia, July 1st, 1859, and was subsequently educated in her public schools. Early in 1874, when about fifteen years of age, he entered the employ of R. Patterson & Co., of which General Robert Patterson was the head, to learn the cotton commission and manufacturing business. This position not only placed young Wood under a capable and earnest instructor in the person of General Patterson, but provided him with wide opportunity for advancement as well. R. Patterson & Co., owned and operated the well known Ripka Mills, Manayunk; Patterson Mills and Broad Street Mill, Chester, Pa., and the Lenni Mills of Lenni, Pa. They also carried on, in their day, an extensive cotton commission business. Mr. Wood was careful to avail himself of the opportunity afforded by these extensive concerns to secure a thorough training in the manipulation of cotton, particularly in its application to the spinning of yarns; and the result was his promotion to the important position of purchasing agent for the several mills operated by R. Patterson & Co. This required him to spend a considerable portion of each year in the South. Broadened by travel and stocked with invaluable knowledge relating to the buying of cotton, Mr. Wood was more than ordinarily equipped to take his next progressive step. This he did by entering upon the responsible duties of manager of the Ripka Mills then operated under the firm style of Frank E. Patterson. He worked with his usual intelligence and vigor in this capacity for five years, from 1885 to 1890, when the Germantown Spinning Co. was formed with Frank E. Patterson as president and Oscar W. Wood as treasurer.

Mr. Wood has been treasurer and manager of this concern since its inception, and with a degree of success that is abundantly testified to by the attainment of the highest commercial credit in their class of capital, by a property in the shape of a substantial stone mill thoroughly equipped with modern machinery and by a product which has an enviable reputation wherever knitting yarns are used. Mr. Wood is a member of the Manufacturers' Club and a

widely known and respected citizen of Germantown. He is a man of fine physique, energetic, socially popular and eminently self-made. He is a remarkable judge of cotton and thoroughly versed in every detail of its manufacture. This intimate knowledge of his business has an important bearing upon the selection of employees. He is generally liked by his hands who accord him that respect which knowledge and the manners of a gentlemen always command.

A sketch of the Germantown Spinning Co. with a striking pen drawing of the mills appeared in the January, 1896, issue of this magazine.

Ramie.

An interesting article, descriptive of the ramie fibre, and illustrated with drawings, showing the appearance of the fibre in its different stages, appears elsewhere in this issue. It is the first of a series of articles on textile fibres. The author truly says that a fortune waits the man who can successfully solve the problem of preparing this fibre economically and efficaciously for the market, at a price which will enable it to enter into competition with the better known fibres.

In addition to the degumming processes mentioned by the writer of the article, mention should be made perhaps of the work of the late Charles Toppan, the later years of whose life were very largely occupied with experiments on this fibre.

In our own experience, the merits of many different decorticators, degumming processes and systems of preparation have been brought to our attention, each one of which was thought to solve the difficulty, but as far as the establishment of its manufacture on a commercial scale is concerned, no progress has yet been made, although we are inclined to look favorably on a recent new-comer.

The latest to try the field is the English Ramie Manufacturing Company. A limited corporation has been organized in Manchester, England, with a paid-in capital of $5,000,000. They will manufacture ramie yarns and cloths by the perfected Feray processes. They now have an experimental plant in Manchester. A representative of the company has just finished a tour of the world, inspecting the localities where the fibre is grown, and the developments of the different experiments where any were carried on. This representative of the company, a baronet, is a man of high commercial and social standing in England. He has been in the United States for three or four weeks, and until a few weeks ago, when he returned. He inspected different ground where ramie was grown or experiments made here. His company has an option on large tracts of ramie-growing land in Florida. The Americans who have shown an interest in the trip of the English Company are men prominent in textile manufacturing and as capitalists.

Lappet Goods.

Of late there has been a great deal of attention given to the manufacture of lappet fabrics, and these fabrics have been, to a large extent, made for the printer. The print goods market has been heavy, competition has been close, and to get out of the old rut, a few manufacturers have started on lappet goods, with great success.

Most lappet goods have hitherto been made using silk for the figuring; this makes a sightly but expensive fabric. Those which are now being made for printing are made of all cotton. The goods are then printed. The general method of figuring is in stripe arrangement, the principal parts of the figure being connected in the stripe by zigzag crossing of the figuring yarn, which will be explained more fully in succeeding issues.

The ground lappet work is printed with flower patterns, which are so arranged to appear only on the ground and not on the lappet figuring. Goods of this character bring a much higher price than plain printed fabrics, on account of their increased sightliness and cost but little more to produce.

Textile World

An Illustrated Monthly Magazine representing the Textile Industries of the United States.

GUILD & LORD, { HENRY G. LORD. BERTRAM LORD.
Proprietors and Publishers.

PUBLICATION AND HEAD OFFICES:

BOSTON: - 620 ATLANTIC AVE.

BRANCH OFFICES:

PHILADELPHIA. 447, The Bourse.
EDWARD S. KENDRICK, Resident Manager.

NEW YORK. 14-16 Vesey Street.
E. P. LOMBARD.

Subscription Price.

$2.00 per year for U. S. and Canada.
2.50 per year for Foreign Countries.
3.00 per year with Dyed Sample Sheets.
(Postage is prepaid by publisher.)

Entered at the Boston, Mass., Post Office as second-class matter.

Directory Issues.

The TEXTILE WORLD publishes four special issues during the year, which include directories of all the textile establishments in the United States, giving the name of mill, location, railroad connections, distances, officers, agent, superintendent, capacity of the mill, kind of goods made, whether there is water or steam power, whether there is a dye house or not, selling agent, and in many instances, the name of the man who does the buying. These directory issues are illustrated by specially prepared maps of the different states, showing the location of each city and town where there is a textile establishment, and only such towns are given.

This directory is the most complete and accurate published, regardless of price. Our perfect system of gathering statistics in connection with the TEXTILE WORLD, and the plan of rewards offered for corrections, as well as the system of revising the information quarterly, makes these directory issues unsurpassed.

We also publish a special issue containing directory of the manufacturing clothiers, cloak and suit makers, jobbers and large retailers buying from manufacturers. The directory issues are as follows:

Manufacturing Clothiers,	January	Number
Suit and Cloak Makers,	"	"
Jobbers and Large Buyers,	"	"
Middle States Mill Direct'ry,	April	"
South'rn and West'rn States,	July	"
New England States,	October	"

Subscription price of $2 per year includes all these special numbers without extra charge. Price of single copies of directory issues, 50 cents.

—If the movement to find a sale for American wool in England is to be permanently successful, it will be necessary, according to reports recently received, that American wool should be put up in better shape, and be of better quality than what has been sent over. The English market is educated to Australian methods of skirting, baling and shipping, and not prepared for the heavy shrinkages in our territory wools. It is to be hoped that the American market will soon provide a sufficient demand for American wool, for even in that case there is need of an earnest and systematic effort to improve the condition in which American wools are sent to market.

—In many sections of East Africa, American drills pass current for money, in trade with the natives. A reputation has been established for excellence and uniformity, which the savages have learned to depend upon. The Commercial Museum of Philadelphia, has recently received a number of samples, which are sold in Mozambique for the East African trade. Among them are two samples of drills, one made in England and the other in the United States. The English drill is sized up to the limit, and of rather coarse texture, while the American drill is fine, close texture, and practically free from sizing.

—Flax culture on the Pacific Coast seems to be on the increase. In certain counties in the State of Washington, where the hop crop has been an important factor in past years, there are no hops at all being raised, flax having taken its place. During the past two years numerous Dutch colonies have settled in various parts of that state, and have been largely instrumental in the introduction of flax raising. One of the colonies has recently started a small flax mill.

—The recent failure of B. L. Price & Co., clothing manufacturers in New York, has aroused a storm of indigna-

tion in the dry goods trade. The members of the firm have been arrested on criminal indictments, on the ground of attempt to defraud their creditors. It seems that there are absolutely no assets, and that more than $100,000 have mysteriously disappeared within a month. Not only the merchants who have directly suffered by this failure, but the whole trade, as well, is aroused, and a strong effort will be made to execute the full penalty of the law against the debtors, and it is further expected that if it is found the present laws do not sufficiently cover this case, that a strong effort will be made to have new ones enacted, which will in future afford greater protection to merchants selling on credit.

—A case of some interest to textile manufacturers will probably be tried in Bridgeport, Ct., before long. The striking weavers in the Salts Textile Co.'s mill have sued the company to recover money claimed to be due them for work done on goods still in the looms. The average amounts are small, being about $3, and the total sum is only $250. The weavers say they want to make a test case of it. The company claims that under its agreement with its men it had a right to refuse payment until the pieces in the loom were finished. In order to allow ample time for them to do this at the old scale of wages, they gave a week's notice of the intended cut. It seems as if a contract similar to that made by the York Mfg. Co., with its employees would cover such cases as this, and would be one of the many instances where it would settle beyond question the exact status of both parties.

—The Bourne Mills still continue their scheme of profit sharing which was adopted a number of years ago. It seems to operate satisfactorily for both stockholders and employees. The principal advantage is that it keeps a first-class set of help better contented and interested in their work. At the annual meeting, which was held in the latter part of October, the results of the year's work showed that the company had paid 18 per cent. in dividends to the stockholders, and 10 per cent. to the employees.

—The fact that talent in special directions is very frequently transmitted from father to son, was shown in a recent instance in England. Three Canadian brothers recently entered for examination at the Yorkshire College, Leeds, and the City Guilds of London Institute. They were the sons of James Allen, managing director of the British American Dyeing Co., of Montreal. Each had taken up the study of chemistry, and in the examinations these three young men took the principal honors and prizes in the chemical department, over all competitors.

—The New Bedford Cotton Weavers' Protective Association strongly discountenances weavers taking extra looms, and will endeavor to make some effort to prevent it. They take the ground that weavers by running extra looms prevent other operatives from obtaining employment, and though at first their earnings may be larger through doing more work, sooner or later the corporations will bring them down to the level of the rest of their operatives. They urge in support of their theory the experience of the past, and say that weavers earned better wages a few years ago for running six looms than they now get for running eight looms.

This is the old stock argument employed ever since the invention of labor saving machinery, that there should never be any progress. Weavers can more easily tend eight modern looms of to-day than six looms of the pattern of ten years ago, and with the general decline in prices for finished product, manufacturers are obliged to avail themselves of the increased production of machinery, and the relative diminution of labor caused thereby, in order to make both ends meet.

The Election and Its Results.

The dark cloud of doubt and uncertainty which had been hanging over the community for months, disappeared on November 3d, and the sunshine of hope and confidence is restoring business to a healthy condition.

The campaign just closed is remarkable for its obliteration of party lines. All patriotic Americans worked together for the cause of national honor. Their victory was a vindication of American character and common sense. It is an occasion for thanksgiving and mutual congratulation.

Now that the battle has been fought and won, everyone is looking forward to the results of the victory and asking what these may be.

In this campaign, manufacturers, business men, and in fact, anyone who had any interests of any kind at stake, or anything to lose, took sides with the Republican party. The victory therefore gives satisfaction to every one who makes business, and the whole business world is therefore expectant of prosperity. This is a most important factor in the situation, for when everyone whose opinion influences business transactions is of the same way of thinking, there are no doubts to overcome, no sores to heal and no disgruntled feelings to operate against revival.

With confidence restored, hoarded funds were deposited in the banks, money has eased and credit is now extended, which will enable business operations to be conducted with freedom. Manufacturers can get money to do business, and they are willing to take risk as to the future, when prospects are as good as they are now, and that accounts in a large measure for the immediate starting up of many textile factories which have been idle. Over two hundred and fifty mills have started up fully or in part since election.

The speculative markets, particularly the stock market, responded immediately to the good news, and with very slight reaction prices have steadily advanced, and the general buying movement has broadened. These speculative markets are the barometers of general trade conditions. The great industrial markets move more slowly. Trade has hardly yet gathered impetus, and has been too long in a stagnant condition to change in a few weeks.

Too short a time has elapsed to feel the direct influence of increased trade from the consumer, through the retailer, jobber and commission house to the mill, and indeed, considerable time must elapse before the purchasing public will emerge from the practice of the most rigid economy necessitated in the past years of hard times, but with stocks depleted, manufacturers are justified in preparing for the demnnd which is sure to come. The experience of the last three years has been too severe to be lightly forgotten, and we do not anticipate any danger of a rush to the other extreme. Recovery will be slow and normal, and it is well that it is so.

One of the first questions that comes to the mind of every textile manufacturer is the tariff. While every man, no matter how strong a believer in protection, rocognized the fact that the currency question was the vital point in the campaign, besides which everything else sank into comparative insignificance, yet Republicans recognize that now we are confronted with the practical question of running the government in such a way as to meet its legitimate expenses, and providing a revenue sufficient for its wants, through the medium of a tariff which shall protect American manufacturers and American working men. We believe it is through no accident that the party standing for sound money should also be the party for sound treatment of the tariff question in the interests of Americans.

This important question should be taken up promptly, and adjusted quickly. It should not be permitted to drag along as was the Wilson bill, so

that only a month's time elapsed after its enactment before the country was again in the midst of its congressional elections. There was much in the Dingely bill to commend it, especially its specific duties, and with some modifications, perhaps good results would be obtained by passing that act at first opportunity. There would not then be time to flood our markets with imported goods, as would be the case if the whole broad subject of the tariff was reopened, and the period of uncertainty prolonged, pending discussion. Mr. Dingley himself says that he sees no prospect of the present Senate acting differently than they did last session, when a majority of eight rejected the Dingley House bill. The Dingley bill could be simplified a good deal, it seems to us.

The textile tariff needs radical revision, and it wants it promptly. The leaders to whom the trade looks for action in this matter, should have in mind the method of proceedure for *prompt* relief fully as much as the details of the bill itself.

Important as these questions are, the main point remains that confidence is restored, business men are ready to do business, and when the wheels of trade get limbered up, we believe that a great momentum will be attained, which will carry us forward on a long journey of great prosperity.

Too Much Publicity.

The Fall River mill officials are reported to have recently arrived at a determination to keep their private affairs out of the glare of publicity as much as possible. Probable there are no other business enterprises of a private nature in which the public is taken into the confidence so much as in the Fall River mills. The claim is made that it gives competitors too great an advantage. Anyone who cares, may know the exact condition of almost anyone of the Fall River corporations, and their financial and manufacturing records are almost open books. Instances of the few Fall River mills controlled by private interests are cited as showing the advantage to be derived from a less public policy.

We believe there is no other community where such publicity prevails. It is doubtless essential to the free sale of mill stock that the financial details of each corporation should be easily accessible, but asside from its advantages in this connection, we can see no reason why Fall River manufacturers should take the public into their confidence any more than do those of New Bedford, Lowell, Lawrence, or other sections of the country.

The claim that the smaller stockholders would object to secrecy seems unlikely to be borne out in practice, because information would hardly be refused to any stockholder inquiring for business reasons. It is the gratuitous publicity through the press that the manufacturers object to, and we think very properly.

Style Suggestions for Woolen Manufacturers.

The general revival in all kinds of business is but the precursor of a marked improvement in woolen manufacturing. The stocks of clothing throughout the country are low, and to replenish those stocks will keep a large percentage of the producers busy.

There is a strong inclination upon the part of manufacturers who are selling fabrics very close to cost to advance the price with the first signs of revival. This will be welcomed by every one, for goods are sold so extremely close at present that in some cases the manufacturer barely turns a new dollar for an old one.

There will be a moderate demand for Bouclé cloths the coming heavy weight season, but the fabrics of this character which will sell must be made in fancy colors, these having superseded the regular black and blues.

Chinchillas are good to make only in the lower grades, as they are used exclusively in the cheaper clothing.

The fabric in overcoatings which will have the greatest attention shown it is, as in preceeding seasons, the kersey, and on this there will be more competition than on all other fabrics in the market, and in regard to this it is only necessary to say that the popular priced fabric will be one dollar per yard. Meltons in a 22 ounce fabric for suiting purposes will find sale.

The worsted cheviots, after the order of those which have obtained such a large sale in heavy weights, will sell, but thay must be sheared closer than is being done. Whipcords and covert cloths and venetians are all good property to make, both in 28 and 22 ounce fabrics. Wool cheviots are superseded by the worsted cheviots.

In fancy cassimeres, the finish required will be a close hard finish, and principally for suitings. Worsteds will sell largely in trouserings, in broad and neat effects.

Prices of the "Good Sellers."

The prices of light weight fabrics can often be used to advantage as a guide in making heavy weight fabrics, as from such data an idea can be formed of what are the best fabrics to manufacture and at what price.

The following lines, with their prices, may afford some service in making the heavy weight fabrics:

O. H. Hayes & Co. have sold a line of cassimere cheviots at 62 1-2 cents, and a line of regular cheviots in fancy colors at 52 1-2 cents Plain black and blue Thibet at 45 cents, the Dexter cassimeres at 65 cents, and a plain weave with velvour finish, giving appearance of tricot long, at 85 cents.

The Berwyn cheviots sold at 65 cents. The Atlas, a coarse looking fabric, but a firm and soft feeling cheviot, at 75 cents. Claremont and Glendons sold at 75 cents; the Claremonts, a regular cheviot fabric, the Glendons, a noil fabric on basket weave, in plaids, etc.

Phillips, Kunhardt & Allen show their usual line of knickerbocker effects, at 85 cents for a plain fabric without twist; 95 cents for fabric in which twist is used in warp to produce pattern, and $1.05 for fabric in which twist is used in warp and filling. They also show a worsted cheviot at $1.25 and a cassimere at $1.50, and a fine wool fabric at $1.75; in all these lines the patterns are large and striking, and the knickerbocker effects are overplaided with indistinct plaids.

The Columbia worsteds, in a fine line of stripes, were sold at $1.10.

The Fairfield worsted cassimeres in large patterns and the new browns brought $1.12 1-2.

Schaghticoke had a line of cheviots at $1.10, and another line of cassimeres at $1.25 less 5 per cent.

Broad Brook covert cloths in the olive browns and tans and green brought $1.50, and whip cords of the same make $1.62 1-2. The Oceanic worsteds, in a line of stripes, sold at $1.62 1-2. The Beoli worsted in trouserings were $1.75, and in suitings $1.57 1-2. This fabric shows good value.

The Savoy worsteds, in stripes, were $1.25 and $1.50, and a line of coarse cheviots of the same make were $1.00.

Oregon City had a line of cassimeres at $1.12 1-2 and $1.37 1-2. The Ram's Horn cheviots were 65 cents; a close finish cassimere made by Sangerville was 75, and the Alton cassimeres of the same character, only a better grade, were 87 1-2 cents.

The Westfields, a close finish cassimere cheviot, were 95 cents. The Hockanum piece dyes in blacks were at $1.37 1-2 and in blue $1.50. The regular worsted fabric was $2.50, $2.62 1-2, $2.75 and $2.87 1-2, all less 10 per cent., and a wool cassimere fabric made by the same firm sold for $1.62 1-2. This line was made in light colors and neat checks and plaids.

The North Adams' regular twist fabric was $1.30 and $1.40. Lexington cassimeres were $1.05, and Priestly worsteds at $2.15 less 5 per cent. Howards were $1.17 1-2, $1.25 and $1.32 1-2.

Stockton & Drowne worsted cheviots in tan browns at $1.00 less 5 per cent; also a line of worsteds at $1.00. Oswego worsteds were $1.50, and the Langham cassimeres at $1.10.

Farwell's worsteds were $1.85; the Central worsteds, also made by Farwell, at $1.50, and the Lyndales at $1.25.

Globe worsteds, stripes and suitings, were $2.37 1-2 and $2.50, both less 5 per cent.

Washington Mills had cheviots at 75 and 85 cents, a worsted mix diagonal, and a corkscrew in mixes at $1.00; a worsted mix twill, checked in the weave, at $1.05, and a line of worsteds at $1.37 1-2.

Doesn't Like McKinley.

A manufacturer has been found who apparently is not well pleased with the election of McKinley and Hobart.

The case is rather a curious one. In our October issue there appeared a short item commenting upon a Cohoes knit goods manufacturer who was quoted by the Cohoes Despatch as declaring that he would, in the event of the election of McKinley, dispose of his plant for 50 cents on the dollar. We did not at that time know who the manufacturer was; in fact, had our suspicions that he was a mythical person.

On the publication of our October issue, one of our subscribers, a knit goods manufacturer in Pennsylvania, wrote in to inquire who the Cohoes manufacturer was, for as McKinley's election seemed so certain, it seemed to him to be a good opportunity to buy the machinery at a bargain.

To get the information for our subscriber, we wrote to the editor of the Cohoes Despatch, stating the circumances, and asking that he furnish us with the name of the manufacturer, so that we might put him in correspondence with our subscriber. We received no answer to the letter, and heard nothing more of it until several weeks later, when another subscriber, a knit goods manufacturer in New York State, sent us a clipping from a Troy paper, as follows:

"John C. Sanford, proprietor of the Fashion Knitting Mill, of Cohoes, who several months ago stated that if McKinley were elected he would sell his machinery for 50 cents on the dollar, has received a letter from a Boston textile journal in reference to the matter, and also stating that if such were the case, a subscriber of the Boston paper might purchase it. Mr. Sandford has mailed the following reply:

"Fashion Knitting Mill company, corner Remsen and Newcomb Streets, Cohoes, N. Y., October 30, 1896.—Guild & Lord, 620 Atlantic Avenue, Boston, Mass., publishers of TEXTILE WORLD—Gentlemen: The past record of those running the McKinley campaign, including the present administration, which declares in favor of the gold standard, a tariff which would bring revenue from imports to meet all the expenses of the government, is so un-American that I consider the election of McKinley would be a calamity to all honest industries in the United States. Therefore, I offer all my knitting machinery for 50 per cent. of last year's inventory if McKinley is elected. (All machinery is paid for and we do not intend to fail). This offer will hold till November 10, 1896. (Signed) J. C. Sanford."

"Mr. Sanford is a Prohibitionist in politics."

Up to date we have not received Mr. Sanford's letter, which he states was mailed to us. Neither have we had any reply to a letter written subsequently by us to inform him that his purported letter of October 30th had not been received. We put our Pennsylvania correspondent in possession of the

facts of the case, and hope he was able to avail himself of the opportunity offered before November 10th.

If Mr. Sanford desires to extend his option, no doubt there are others who may be interested, and if he really means what he says, he should be obliged to us for giving his offer publicity without charge. This is the first instance that has come to our knowledge of any textile manufacturer who is not satisfied with the election of McKinley.

How It Works.

It will be remembered that the revision of duties under the McKinley tariff was so framed as to give adequate protection to the plush industry, which was not at that time developed to a very large scale in this country. The result was that a number of good sized factories, five we believe in all, were established in this country, and employment given to hundreds of American operatives.

The firm of Lister & Co., Ltd., of England, one of the largest plush manufacturers in the world, still kept up their importations and their New York agency, and have continued to do so until the present time, when they have decided to close their American agency, and withdraw from business in the United States. Its New York representative, in a recent interview, explained the situation as follows:

"The McKinley duties were practically prohibitive on our goods. The elections of 1890, however, gave us hope that in the elections of 1892 conditions would permit of considerable reductions in duties, which would again enable our goods to find access to this market. The Wilson Bill was the outcome of these hopes, and the reductions made by it did not avail to re-establish our trade with this country. Meanwhile, the domestic makers had become strongly intrenched, and the depression of the past three years has been so great that only small quantities of *better* goods, which are all we can import, were wanted. Being, therefore, convinced, that it was impossible for us to make any headway against these conditions on imported goods, I have used my utmost endeavor for more than a year past to induce the concern to come out to America to manufacture goods. Last spring one of the directors came out to investigate the conditions, and I then plainly told him it was simply a question of two things: Coming out here to manufacture, or shutting up. They have decided upon the latter course. The business will be gradually wound up."

This is a striking instance of the way in which a protective tariff works for the benefit of the American people. An industry previously conducted on a small scale becomes firmly established on American soil, and satisfactorily supplies the American market. Once established, competition among many firms, instead of few, suffices to regulate prices, and new avenues of employment are opened up.

It is the same case with the tin plate industry, which was such a bone of contention when the McKinley tariff was under discussion. As a result of the McKinley bill, the tin plate industry has become an important one, without enhancing the price to the consumer.

The Mechanical World of England, an authority on the metal industry, says of the American tin plate trade:

"Those Welsh manufacturers who questioned the establishing an American tin plate industry must have long since become reconciled to the inevitable, and sought new markets for their products. Probably, however, few outside the actual industry are aware of the extent to which the manufacture of tin plate in America is already carried on. A careful estimate gives the rate of production going on at the close of June at not less than 4,000,000 boxes a year, a sufficiently large amount, and closely approximating the full current needs of American consumers."

Of Doubtful Benefit to Textile Manufacturers.

The Chicago Dry Goods Reporter, with its accustomed enterprise, has a new hobby. Last year it was a Cotton Exposition for Chicago; now it is a National Industrial Exhibit. The scheme is to have American manufacturers in all lines keep a standing exhibit of their goods in some large building in Chicago. There will be a special display each spring and autumn, when merchants are purchasing stocks. No shred of foreign goods will be allowed in this exhibit, and the reporter believes that its influence on American trade would be tremendous.

The idea is one that at first thought appeals to the patriotism of American manufacturers, but with no wish to throw cold water on the scheme, we confess that it is one of those ideas which are better in theory than in practice. Such an exhibition, in order to succeed, must be financially self-supporting, unless the city of Chicago itself should step in and generously offer to defray the expenses. In order to be self-supporting, it means that manufacturers maintaining exhibits must not only pay for space, but must be at considerable expense for the maintenance of their display, especially as in the case of textile fabrics frequent changes would be necessary, in order to keep them up to date.

We can understand how such an exhibition might be beneficial to the manufacturers of novelty goods which have a distinct individuality, and which are sold directly to the consumer from the manufacturer, but the marketing of textile fabrics is to a very large extent done through middle men, and the distinctive features of a line of goods are not so apparent as to impress themselves forcibly upon the consumer. We doubt very much whether the exhibiting textile manufacturers at the World's Fair reaped any material benefit. The exhibits were made more from a sense of pride and patriotism than with the idea of profit.

The Dry Goods Reporter prints a number of letters from the manufacturers in the Middle and Western States, mildly commending the idea, but we notice that most of them take occasion to say that while the idea is a good one, it doubts the advantage of their own particular mill making an exhibit.

It is always much easier to say a good word in a general, in behalf of any project than to point out logical objections. The natural feeling of most Americans is to help a thing along. We have seen so many exhibits founded on a sentimental basis come to grief, that we believe that conservatism is better than enthusiasm in such projects.

Among the letters printed is one from a level-headed Minnesota manufacturer, proprietor of the Mankato Knitting Mills, which contains a great deal of sound sense:

MANKATO MINN., Oct. 6, 1896.

"You ask our opinion and we are compelled to give it unfavorably. We do not believe that such an exhibition would be a success. It is not usual for manufacturers to put their best things up for an exhibit for everybody else—every other manufacturer—to examine, and 'catch on' to. They prefer to work their trade more particularly themselves than to have it done in this way. Again it would cost less than to keep it on exhibition in this way probably. We know it has been the custom of those who want to get a job, or want something for nothing in New York, to want our goods on exhibition, with reference to sale of our goods in New York or in foreign countries, but it hasn't been a thing that meant business. We would be called upon to pay a certain amount for space, for taking care of the exhibit, and letting anybody see it if they wanted to come in and see, but it is not pushing business that brings business. We think it would be very largely the same in Chicago. If Chicago would provide for its care and maintenance probably she could keep up something so as to be fairly representative, and fairly creditable; but we do not believe then, that manu-

facturers would keep their best manufacture there, that which they are pushing. Believe it would be more of a stale exhibit carried on in a perfunctory kind of a way, that would be of no very great credit to the nation or to Chicago. This, however, is only our opinion."

American Cotton for Japanese Mills.

The Japanese cotton trade has agents in the South, for purchasing cotton for the Japanese mills, says the Tradesman. One of these is now at Waco, Texas, buying cotton for mills at Kobe. This country will, eventually, have a monopoly of the Japanese trade in raw cotton. China will not, for many years, raise any more cotton than her mills will consume. She is going to make a strong effort to maintain her independence of Japanese cotton fabrics by making them for her own people. Besides this, the difference in waste, in favor of American lint, as compared to Indian or Chinese, will pay more than the difference in the cost of transportation. The Japanese mills will probably consume about 500,000 commercial bales of 400 pounds each in 1897. This is quite a factor in a crop of 8,500,000 bales.

What Silk Waste Is.

The Board of General Appraisers in a recent decision thus defined silk waste: The silk waste of commerce consists, first, of cut or pierced cocoons, the unity of the silk fibre of which has been destroyed by the moth; and second, of small bits or fragments which are pulled or broken off in the process of reeling the threads or fibres from cocoons.

—A Canadian paper describes a process for putting a coating of wool fibre on a cotton thread. It is done while the roping is passing through the draft rolls on the spinning frame. Wool stock is fed from a box above, through a regulator upon two sets of toothed rolls, whose teeth force the fibre of wool into the body of cotton sliver. We never heard of this process being employed in practical use, and the journal fails to give any information on this subject.

Textile Fibres—Ramie.

Men who have spent thousands of dollars and years of study and experiment investigating the subject say that some day someone will make a vast fortune in manufacturing ramie fibre.

This plant, which is seldom heard of by general readers, has in it all the fascinating possibilities which lead men to risk fortunes that they may realize the greater success which is always out of reach.

Ramie provides the fibres of which the beautiful, delicate "grass" cloth of China is made. It is a near relative to the stinging nettle which furnishes an excellent textile fibre.

The species which produces the largest and finest fibres grows in tropical countries and has been cultivated with success in Louisiana, Texas and California.

The plant grows to a height of five to seven feet and the stalks are about as thick as a lead pencil and contain the fibres bound together with a gum which is the obstacle in the way of successful manufacture of ramie. Chemists, manufacturers and botanists have labored for years on this problem, "What must be done, mechanically, chemically, or both, that will prepare the fibre for commercial and industrial purposes, cheaply and rapidly?" and no one has solved the problem practically.

The fibre has been successfully treated in a number of ways and a large and important display of ramie product was made at the Atlanta Exposition, but the tantalizing gum still puzzles the chemists.

Nearly every government on the face of the globe has encouraged the establishment of the industry in one shape or another.

In 1869 Great Britain offered a prize

of $25,000 for a satisfactory process or machine which would do away with the costly and laborious hand methods of cleaning the fibre. This prize spurred on the work of investigating and experiment, and to-day several methods and machines are in operation, but success is not fully realized.

Ramie fibre is a beautiful, snow white, flossy, strong, silky fibre, and is many times longer and equally as fine as the finest and longest staple Egyptian cotton.

It is believed that the cloth for wrapping the dead in Egypt thousands of years ago and the curtain which hung in front of the tabernacle of the Children of Israel and all of that splendidly dyed cloth which is spoken of in the history of those days was ramie. It is called linen in the Bible and other books, but it is a source of wonder how linen could be dyed in those brilliant colors.

The brilliant cloths of old Egypt and Greece are not woven of flax or cotton, but of ramie, for cotton is comparatively a modern product, and was not known or used much among the ancients.

No fibre takes color with more avidity than ramie; the finest wool is not more susceptible to color, and silk is not dyed as easily or permanently, and the reason is that ramie fibre is pure cellulose, and is more susceptible to color than any other vegetable fibre.

The process of removing the woody parts of ramie which encircle the fibre if called decorticating, and was formerly done by hand, the result being a collection of long greenish colored rods about as thick as a knitting needle. A machine was recently made in New Orleans which does this, and will do the work of 19 men, but the real trouble, that of degumming, comes after.

A Frenchman and an Austrian have invented chemical processes which degum the fibre, and they have been so successful that the long staple is sold at from 40 to 60 cents a pound, and the short fibre or waste material, called "noils," sells for 14 to 19 cents. The "noils" are used for mixing with wools, and serve the purpose, for it mixes and takes color well,

Most of the chemical processes used in degumming the fibre weaken it. This does not appear at first, but the weakness makes itself manifest in from four to six months, when the cloth falls to pieces.

The mechanical processes of extracting the fibre are divided into two classes of machines, the "delignators," or simple bark strippers, and "decorticators" which are supposed not only to remove the bark but to remove the outer skin and the layer of matter which covers the fibre.

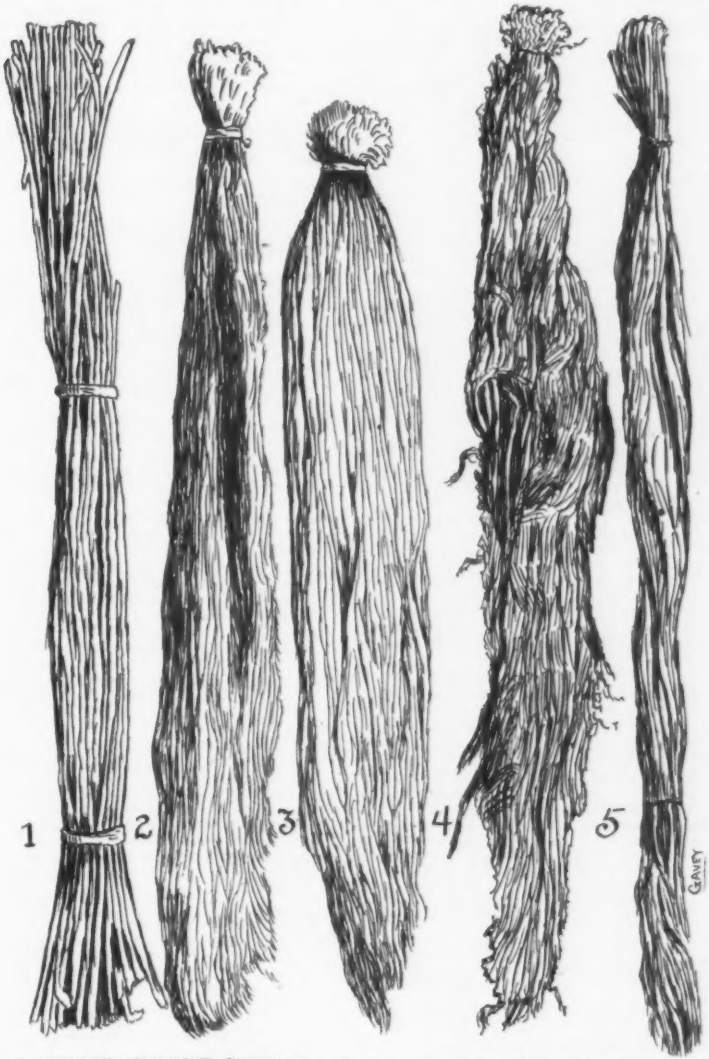
The bark strippers produce the fibre in flat ribbons, only taking off the wood of the stalk. They do this with knives which split the stalks before they are subjected to the breaking and beating. The decorticators first crush the stalks by means of rollers, afterwards presenting the flattened stalks to the beating and breaking devices, and then comb the fibre before its delivery to the discharging apron.

In the best decorticators the fibres, if the ramie is treated while green, comes out as fine, light and clean as China grass, and if the ramie is dry the fibre is soft enough to spin into coarse cordage without further manipulation.

The after process and manufacture of ramie is the sticking point with manufacturers. The gum which holds the fibre together, unlike the gum in flax, is not soluble in water, so that it cannot be removed by the process of "retting" with water, as is done with flax. The degumming process in the case of ramie requires peculiar chemical manipulation, for the gums must be washed out and dissolved without attacking the cellulose. When the gums are dissolved, the epidermis can be detached and mechanically separated from the fibre by washing, and then the fibre can be heckled, spun and woven as flax, cotton or wool are worked.

Every man who has taken up the study of ramie, whether he be farmer, manufacturer, chemist or botanist, declares that the man who finds the key to the successful practical manipulation of ramie will open a money chest.

There seems to be no limit to the possibilities of this fibre, for it can be manufactured into goods for men's wear, upholstery, laces, curtains, embroideries, velvets and plushes, stockings, underclothing, damask, handerchiefs, sail duck, sheetings, carpets, ropes, cords, fishing nets, thread for sewing, and a hundred other things.



1. DRIED RAMIE STALKS; 2. RAW FIBRE; 3 DEGUMMED FIBRE; 4 MACHINE CLEANED FIBRE; 5 CHINESE HAND CLEANED FIBRE.

—The funny man says that the wire tie now being introduced among cotton planters seems to be the natural outcome of the celluloid collar.

PERSONAL RECORD.

Recent Changes.

In order to give all the news in this line, it is brought down to the mere facts; the name of the man is given first, the position he is holding, and the mill he is now employed in, follow next, while the place where he was previously engaged is given last, if the information is at hand.

John Peel, second hand weaving, Richard Borden Mill, Fall River, Mass. Pocasset Mill, same place.

James Dipon, Knoxville Woolen Co., Knoxville, Tenn ; overseer carding and spinning, Louisville, Ky.

R. H. Belcher, overseer of carding, Corr Mfg. Co., Taunton, Mass.; Fall River Mfg. Co., Fall River, Mass.

Geo. Spofford, superintendent, Readville (Mass.) Cotton Mill; B. B. & R. Knight's Mill, Natick, R. I.; formerly Grant Mill, Providence, R. I., and U. S. Cotton Mills, Central Falls, R. I.

Jos. Heppinstall, superintendent, Peacedale (R. I.) Mfg. Co.; formerly superintendent, Oneko Mills, New Bedford, Mass.

Wm. Livingston, printer, Merrimac Print Works, Lowell, Mass.; recently superintendent, Passaic (N. J.) Print Works.

James H. Jewell, engineer, S. F. Wormwood Co., Boston, Mass.; Clinton Mfg. Co., Woonsocket, R. I.

David Wright, overseer of weaving, Providence, R. I.; formerly loom fixer, York Mills, Saco, Me., 14 years.

C. H. Tobey, superintendent, Oneko Woolen Mills, New Bedford, Mass.; formerly at Middleboro, Mass.

Frank H. Tolcott, overseer of finishing, M. T. Stevens & Son, Franklin Falls, N. H.; formerly Franklin, Mass.

Thos. J. Maxwell, superintendent, Warren Woolen Co., Stafford Springs, Ct.; formerly with Messrs. Edward Steele & Co., Bristol, Pa.; also Peacedale Mfg. Co., Peacedale, R. I.

A. Stalling, Matthews Cotton Mill, Selma, Ala.; formerly at Exposition Cotton Mill, Atlanta, Ga.

Samuel Swindles, overseer of weaving, Nemasket Mill, Taunton, Mass.; recently at Oswego, N. Y.; overseer Nemasket Mill before.

Michael Saunders, second hand mules, Richard Borden Mill, Fall River, Mass.; formerly at Pocasset Mill, same place.

J. P. Hanley, superintendent, Yount Woolen Co., Yountsville, Ind.; formerly with Columbiaville Woolen Co., Columbiaville, Mich.

F. Hinchliffe, loom fixer, James Hirst, Somerville, Mass.; lately with Crompton Loom Works, Worcester, Mass.

John R. Davis, designer, Bemis Mills, Watertown, Mass.; formerly at East Rochester, N. H.

P. H. Dunlea, overseer finishing, Cavendish Woolen Mills, Cavendish, Vt.; formerly at Springfield, Mass.

Henry Bruce, overseer of carding, New Britain (Ct.) Knitting Co.; of Herkimer, N. Y.

Wm. Blake, Jr., Southbridge Printing Co., Southbridge, Mass.; from Putnam, Conn.

R. A. Manning, overseer of carding, Thomas Kent Mfg. Co., Clifton Heights, Pa.; formerly at Raritan, N. J.

H. H. Lowder, Salisbury, N. C.; formerly at Concord, N. C.

Thomas Hartley, superintendent, Guilford Ramie Co., Guilford, Ct.; formerly Springfield Worsted Mills, Bordentown, N. J.

Thomas E. Wooley, overseer of weaving, Grant Mill, Providence, R. I.; formerly with U. S. Cotton Co., Central Falls, R. I.

Charles Bromley, overseer of carding, Farnsworth Mills, Lisbon Centre, Me.; from Connecticut.

Mr. Balkam, second hand of carding, Farnsworth Co., Lisbon Centre, Me.; formerly from Vermont.

Patrick Coyle, carpenter shop, Hamilton (R. I.) Web Co.; formerly of Whitinsville, Mass.

Alanson Fuller, overseer finishing department, B. Lucas & Co., Poquetanuck, Ct.; formerly of Hanover, Conn.

David Hopps, Vassalboro Woolen Mills, North Vassalboro, Me.; formerly of Pittsfield, Me.

W. G. Radcliffe, superintendent and designer, Dundee Woolen Mills; formerly held same position at Stroudsburg (Pa.) Woolen Mills.

John Secor, overseer of carding, Egberts Woolen Mill, Cohoes, N. Y.; formerly at Shenandoah Mill, Mechanicsville, N. Y.

Arthur Threappleton, overseer carding and spinning, Barnesville Mfg. Co., Fairmount, West Va.; formerly with W. Dimock Mfg. Co., Rifton Glen, N. Y.

Arthur West, Peel & McCarthy's Mill, Stafford Springs, Conn.; formerly of Rockville, Conn.

J. P. Battles, with the American Drosophore Co., Devonshire St., Boston, Mass.; formerly superintendent of the Nonantum Worsted Co., Newton, Mass.

Allen Little, charge of Blue Springs Cotton Mill, Oxford, Ala.; recently at Griffin, Ga.

M. D. Harris, overseer of carding and spinning, Buffalo Cotton Mill, Concord, N. C.; formerly at Pacolet, S. C.

W. H. Loguee, superintendent, Holt, Grant & Holt (Altamahaw Cotton Mills), Elon College, N. C.; with Sibley Mfg. Co., Augusta, Ga., 11 years.

A. J. Mann, overseer of weaving, Warren Mills, Warren, R. I. (his old position previous to the fire); recently superintendent, Phenix, R. I.

Winfield S. Pratt, assistant superintendent, Galveston Cotton Mills, Galveston, Texas; formerly overseer and designer, Pequot Mills, Montville, Conn.

Guy M. Ward, overseer of finishing, Taconic Mill, Pittsfield, Mass.; recently at Pomeroy's Mill, same place.

Mr. Ferguson, designer, Piscataquis Woolen Co., Guilford, Me.; formerly at Lewiston, Me.

Chas. F. Peasley, overseer of dyeing, Reedsburg Woolen Mills, Reedsburg, Wis.; formerly at Lawrence, Mass.

J. H. Sharp, overseer of carding, Granite Falls (N. C.) Cotton Mills; formerly held same position in Long Shoales (N. C.) Cotton Mills.

James Cunningham, second hand in finishing room, Hope Valley, R. I.; formerly held sameposition with W. F. Slade & Co., Pascoag, R. I.

James Mehaug, second hand spinning department, Lonsdale (R. I.) Co.; formerly at Blackstone, Mass.

J. J. Gormley, secretary, Charlotte Machine Co., Charlotte, N. C.; for several years secretary of the Ada Cotton Mfg. Co., same place.

Henry Greenup, engineer, Saxonville Mill, Providence, R. I.; formerly held a like position in the rubber mill at Woonsocket, R. I.

Albert P. Bibber, Cowan's Woolen Mill, Lewiston, Me.; formerly at Lisbon Falls, Me.

W. F. Moody, superintendent, Weldon, N. C.; formerly overseer of weaving, Whitney (S. C.) Cotton Mills.

E. S. Rathburn, superintendent, Commonwealth Cotton Mills, Durham, N. C.; formerly of Danielson, Conn.

Henry Roehm, superintendent, Cushman Mill, Monson, Mass.; formerly overseer of weaving with the Swift River Mfg. Co., Enfield Mass.

Acceptances.

Ben Nuttall, superintendent, Globe Cotton Mill, Rock Hill, S. C.

Mr. Baxter, wool sorter, Warren, Mass.

Geo. F. Morris, loom fixer, Lebanon, N. H.

Charles Mechel, dresser tender, French & Ward, West Stoughton, Mass.; has filled the same position before.

S. E. White, second hand of carding, Grant Mill, Providence, R. I.

David Wallace, overseer of dyeing, Globe Cotton Mill, Rock Hill, S. C.

Chas. Katen, loom fixer, Abbott & Co.'s Mill, Dexter, Me.

Geo. Welman, overseer of dyeing, Reynolds Mfg. Co., Monson, Mass.

V. Wallace Wiley, president Rowan Knitting Co., Salisbury, N. C.

S. H. Wiley, secretary and treasurer, Rowan Knitting Co., Salisbury, N. C.

A. O. Murphy, secretary and treasurer, Barnesville (Ga.) Underwear Mills.

R. C. Moore, secretary, treasurer and general manager, Fort Mill (S. C.) Mfg. Co.

Peter Brown, engineer, Clinton Mfg. Co., Woonsocket, R. I.

John H. Barnwell, overseer of spinning, Albion Mills, Albion, R. I. (his old position).

R. D. Blake, overseer of carding, Fall River (Mass.) Mfg. Co.

James Harwood, overseer in Union Mills, Moosup, Conn.

Rufus Burris, overseer of night carding and spinning, Buffalo Cotton Mill, Concord, N. C.

Chas. Babcock, overseer of carding, Old Kentucky Woolen Mills, Louisville, Ky.

Peter McColley, overseer of dressing, spooling and twisting, Cowan Woolen Mills, Lewiston, Me.

John Meier, superintendent, D. W. Alderman & Sons, Aiolu, S. C.

C. J. Brown, overseer of carding, Stafford Mills, Fall River, Mass.

Resignations.

James Sullivan, overseer carding, Egbert's Woolen Mill, Cohoes, N. Y.

Miss Katie Keegan, D. M. Collins Knitting Mill, Pittsfield, Mass.; accepted position in New York.

Felix Kernan, Interlaken Print Works, River Point, R. I.

Amasa Gregory, finishing department, Madison Woolen Mills, Madison, Me.; in this one department 31 years.

Wm. G. Nisbet, overseer weaving, Saugus, Mass.; moved to Waldoboro, Me.

Dennis Cassidy, machine printer, Dunnell Print Works, Providence, R. I.

A. B. Sanford, for 15 years treasurer of the Globe Yarn Mills, Fall River, Mass., has resigned that position, but probably will continue as selling agent.

L. T. Davis, assistant superintendent, Arctic Cotton Mills.

H. F. Daugherty, superintendent, Globe Cotton Mill, Rock Hill, S. C., has resigned, and moved to New Bedford, Mass.

John T. Lord, for several years head clerk at the Lower Pacific Mills, Lawrence, Mass., has resigned and sailed for Europe.

C. E. Burby, superintendent for a long time of the Readville Cotton Mill, has resigned and moved to Rhode Island.

Wm. Lindsey, president and director of Globe Yarn Mills, Fall River, Mass., has retired.

Benjamin Ransehousen, overseer of finishing, Taconic Mill, Pittsfield, Mass.

John McHugh, loom fixer, Worumbo Woolen Mill, Lisbon Falls, Me.; gone to Lewiston, Me.

Joseph L. Whittaker, 20 years overseer Groveland Mills, South Groveland, Mass.

Theodore F. Klutz, president, Rowan Knitting Co., Salisbury, N. C.

Wm. Kohn, overseer of weaving, Union Mills, Moosup, Conn.

B. D. Springs, secretary, treasurer and general manager, Fort Mill (S. C.) Mfg. Co.

F. S. Kale, overseer of carding and spinning, Buffalo Cotton Mill, Concord, N. C.

B. W. Elder, secretary and treasurer, Barnesville (Ga.) Underwear Mills.

Theodore Buerbaum, secretary and treasurer, Rowan Knitting Co., Salisbury, N. C.

Thomas Waite, cloth examiner, Pioneer Mill, Pittsfield, Me.

Edward Terryberry, overseer of weaving, Trainer & Sons Mfg. Co., Trainer, Penn.

G. C. Harper, superintendent, Southern Cotton Mill, Bessemer City, N. C.

Edwin Hislop, night carder and spinner, Buffalo Cotton Mill, Concord, N. C., has removed to his former home, McAdensville, N. C.

James Taylor, for a long time overseer of dyeing for the Messrs. Crozers, Upland, Pa., has started a dye house at Avondale, Pa.

Justin Daniels, engineer, Blackstone (Mass.) Cotton Mills.

H. R. Brown, overseer of carding, Royal Mills, Riverpoint, R. I.

Wm. Walmesly, overseer of weaving, No. 1 Acushnet Mill, New Bedford, Mass.

Presentations.

Mr. Willmott, overseer spinning, Boott Cotton Mills, Lowell, Mass; presented with purse of money by his former employees.

Fred Prew, Hamilton Mills, Amesbury, Mass.; violin, by friends, on his birthday.

Thomas Murphy, second hand of weaving, Berkshire Mill No. 3, Adams, Mass.; sideboard and dining room table by his former employees in No. 2 mill, same place.

Charles E. Strout, section hand in the weave room of the Hillsboro Woolen Mill, Hillsboro Bridge, N. H.; plush rocker, pipe and cigars by his weavers; Mr. Strout has accepted a position in Massachusetts.

Geo. M. Nickerson, overseer Pacific Mills, Lawrence, Mass.; ebony cane by his friends, on his 50th birthday.

Promotions.

Henry Brown, overseer of carding, B. B. & R. Knight's Mills, River Point, R. I.; to be superintendent at Phenix.

Edwin Kershaw, head bookkeeper, Merchants Mill, Fall River, Mass.; assistant bookkeeper, same place.

Fletcher McAbee, overseer spinning, Cowpens (S. C.) Mfg. Co.

Marriages.

Miss Mary Alice Abbott to Richard W. Twigg, at the residence of Thomas Abbott, overseer at the Bourne Mills, Fall River, Mass.

Edward Bacon, of Bristol, R. I., second hand in the card room of the Nanquit Mills, to Miss Rose Fountain, of Warren, R. I.

Arthur L. Strong, son of President Strong, of the Mechanicsville (N. Y.) Knitting Co., and Miss Laura Calnan.

H. McDonald, secretary and treasurer, Rocky Mount Mills, Rocky Mount, N. C., and Miss Lizzie Battle, of the same place. Mr. McDonald was formerly of Kershaw, S. C.

Charles F. Keefe, second hand in the Union Mill, Fall River, Mass., and Miss Maud V. Allen.

Louis E. Anderson, overseer of spinning at the Henrietta (N. C.) Mill, and Miss Nannie Pendleton, of Tennessee.

Edwin K. Powe, superintendent, Erwin Cotton Mills, Durham, N. C., and Miss Claudia Erwin.

Miscellaneous.

A. S. Gray, bookkeeper, Sanford Spinning Co., Fall River, Mass.; leg broken playing ball.

Vinton Liddell, formerly president of the Highland Park Mfg. Co., Charlotte, N. C., has returned from an extensive tour in Europe.

Messrs. Charles and Nicholas Leclercq, recently with the River Spining Co., Woonsocket, R. I., have sailed for their old home in Belgium.

Chas. Huber, designer for Golden Rod Silk Co., Paterson, N. J., is now on an extended trip in Europe.

Louis D. Duval, superintendent, Cannon Mfg. Co., Concord, N. C., has been elected superintendent of the Central Methodist Sunday-school.

Eben Draper, of the firm of Geo. Draper & Sons, Hopedale, Mass., has returned from a trip abroad of several months' duration.

Deaths.

George H. Foye, 68, formerly overseer of weaving in the Methuen Mills, Methuen, Mass.

John W. Murphy, Woolen finisher, Fulton Mills, Oswego Falls, N. Y.; caused by the accidental discharge of his pistol.

Nathaniel E. Taft, satinet manufacturer, North Oxford, Mass.

Barney Worsley, age 18, Richard Borden Mill, Fall River, Mass.; struck on the head by a falling piece of iron.

Wm. T. Higgate, 68, of Germantown, Penn.; knit goods manufacturer.

William McKenna, said to be the oldest cotton mill overseer of Woonsocket, R. I., who retired several years ago.

Albro E. Freeman, Webster, Mass.; formerly overseer of dyeing at Shaw's Mills, Wales, Mass.; results of a fall from railroad bridge.

William E. Snowling; formerly blacksmith, Globe Mill, Woonsocket, R. I.

John A. Powers, 80, Lancaster, Pa. It is said that he assisted in building the first cotton mill in Lancaster.

Geo. W. Cook, retired engineer; supposed to be the result of an accidental discharge of a shot gun; for a quarter of a century engineer at the Richard Borden Mill, Fall River, Mass.

John Keefe, Woonsocket, R. I.; 30 years in the Hamlet Mill.

Geo. Webb; mechanic, Bates Mills, Lewiston, Maine.

Mr. Wallace Freeman, formerly manager of the Freeman Company, now Winsor Co., No. Adams, Mass.

Vincent Murray, 25, Astoronga Knitting Mills, Little Falls, N. Y.; walking on railroad track.

Geo. Stevens, 45, Hamilton Mills, Lowell, Mass.; caused by elevator.

Frederick Walsh, 75, Woonsocket, R. I.; was in the employ of Edward Harris and the Harris Woolen Co. more than 40 years.

E. Kellogg Rose, 61, Passaic, N. J., silk manufacturer, formerly of Rockville, Conn.; his wife, three sons and two daughters survive him.

John Nason, 69, for many years a watchman for the Pepperell, Laconia and water power companies.

Amos Fillmore, 60, with the Lowell (Mass.) Machine Shops for the last 30 years.

Chas. A. Godfrey, 32, designer for the firm of Marshall & Crosby, Lowell, Mass.; formerly with the Lowell Bleachery, same place.

Frank W. Hale, 70, for many years treasurer and agent of the Portsmouth Mill, So. Berwick, Me.

Henry C Matteson, heart failure, Pawtucket, R. I.; was overseer of ring and mule spinning for the Berkeley Cotton Co.; formerly 10 years with Conant Thread Co.

Wm. A. Harris, 61, founder of the Harris-Corliss Co., Providence, R. I.

Frank Germain, carpenter, Bristol Mill, New Bedford, Mass.

Hiram Bassett, formerly for several years with Abbott Woolen Co., Dexter, Me.

H. W. Randall, 66, overseer in the Manchester Print Works.

—The Cordova Carpet Co. has been organized under Maine law, and has opened an office at 1 Beacon Street, Boston. The concern is to manufacture the Coley patented double-faced woven pile fabrics for carpets, rugs and art squares. Think of a reversible double-faced Wilton or Brussels carpet fabric, having a different pattern on each side, with similar or different coloring, as the case may be, and you can judge of the goods. The company claims that these fabrics can be turned out at about the same price as single faced goods.

—The Sanford Spinning Co. recently declared a quarterly dividend of one per cent.

—The receivers of the Eagle & Phœnix Mfg. Co., of Columbus, Ga., have applied to the court for permission to issue receivers' certificates to an amount not exceeding $100,000, to be used as commercial capital for the purchase of raw materials and supplies, which will enable them to continue the operations of the mills.

QUESTIONS AND ANSWERS.

Under this head we shall undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

Public Examiner of Woolens.

MASS., Oct. 7, 1896.

Editor Textile World:

Will you kindly give us the name of a reliable public examiner of woolen cloths in the city of Boston, and oblige,

Yours truly,

N. W. W. CO.

[W. B. Nickerson, 26 Chauncy St., Boston, is an examiner and public adjuster of claims on woolens, who has been employed by many of the large commission houses for several years as the adjuster of their claims. We understand he is the only man in Boston making a business of this work.]

Patterns for Underwear.

Oct. 27, 1896.

Editor Textile World:

Will you kindly inform me where I can obtain patterns for cutting underwear. I do not find any advertisement of same in your magazine. Yours truly,

H. W.

[If you mean patterns by which underwear may be cut out, there is not, to our knowledge, any firm who makes a business of supplying such. Most manufacturers get up their own patterns, or more frequently copy others If you do not feel competent to do this yourself, no doubt you could employ some practical man to get them up for you, or we would suggest that you could obtain some underwear of standard make, rip it apart, and mark out patterns from the pieces, with due allowance for shrinkage, etc.]

Lisle Thread.

Editor Textile World:

Enclosed please find check for $2 for another year's subscription to the TEXTILE WORLD. We like the TEXTILE WORLD very much, and the directory idea.

We have had some difficulty in finding a mill that makes lisle thread suitable for hosiery. There is no great demand for this style of goods, still there is some, particularly for soft lisle. Can you help us?

Yours truly, M. KNITTING MILL.

[We would refer you to the advertising columns of the TEXTILE WORLD, where there are several concerns advertising this kind of yarn.]

Looking for a Site.

Editor Textile World:

NEW JERSEY, Nov. 4, 1896.

We are about to resume business, having done nothing since our plant burned out last June. We are looking for a good location, having all the advantages required for successful manufacturing (silk). We also desire to get the best inducements possible.

Yours truly, LEGHORN.

Analyzing Water.

Editor Textile World:

Will you please give me the chemicals necessary to analyze water. I saw an article published in your magazine several months ago on this subject, but the name of the chemicals has escaped me.

Boston. R. A. M.

[All the tests necessary for ordinary, practical use can be made with articles which any druggist keeps in stock.

At first you need a soap solution and a few glass vials, or test tubes as they are called. When you wish to ascertain whether the water is hard or soft, take a clean tube, pour about an inch of soap solution into it, add a few drops of water, which if hard will turn it milky or curdy.

If you wish to ascertain if the water is acid or alkaline fill the tube half full of water and dip a piece of red litmus paper into it. If the paper does not turn blue the water is not alkali. Next dip a piece of blue litmus paper in it, and if the paper does not turn red the water is not acid.

If you are looking for carbonic acid, pour into the tube about an inch of water and the same quantity of lime water. If there is carbonic acid the water becomes milky, and on adding a little hydrochloric acid will become clear again.

To see if sulphate of lime (gypsum) is present, fill the test tube with about 1 1 2 inches of water, add a little chloride of barium. If a white precipitate is formed which will not dissolve when you add a little nitric acid, the water contains gypsum.

A test for magnesia is made as follows: Fill a test tube 1-3 full of the water, bring it it to a boil over a spirit lamp, then add a very little carbonate of ammonia, and the same amount of phosphate of soda; set it aside for some moments, and if magnesia is present it will form a white precipitate.

If the test tube is 1-4 full of water, and two drops of cochineal are added, and the water turns blue instead of pink, it will denote the presence of lead.

Copper will be shown by adding a few drops of chloride of ammonium to some water in which has been placed a few fillings of soft iron. If it turns blue it is an evidence of copper.

Adding one drop of ferrocyanide of potassium to a little water in a test tube will color it blue if iron is present.

A large number of tests of course are made in a thorough analysis, but these are the ones which most interest the ordinary engineer, and can be made with the least trouble and expense.—ED.]

Elevator Power.

Editor Textile World:

Will you please tell me through the columns of your paper how many horse power it will take to run an elevator 50 feet per minute, carrying a load of 2500 pounds?

South Weymouth. H. L. D.

[Local conditions and the make of elevator govern the power required to run it. The ratio of power used in starting an elevator at a given speed is rapidly increased as the speed increases; to carry 2500 pounds rapidly, takes considerably more foot pounds than to put it in operation at a slower speed. If the elevator is run from a line shaft, should say it would require from 5 to 6 horse power. If a special engine is to be installed to run the elevator, one of 10 to 12 h. p. would be advisable. If it were an electric elevator run by an electric motor, it would be well to figure on not less than 10 h. p. It is always well to provide a little surplus power for contingencies, such as low steam, low current, etc.]

Scored Commutators.

Editor Textile World:

Will you please explain the following: In the boat I am connected with at present, we have an Eddy dynamo which has been in service about two years, and when in service about six months, two marks appeared on the commutator which extended the whole width of it.

These marks are one on each side of the commutator directly opposite each other and about half the width of one segment. In each case they appear to be burnt but I do not see how that can be. There is no water or dirt allowed to get on it and there appears to be no bulge or short circuit there.

These marks have been ground out with sand paper, but after running one night they will be there again. Outside of this the commutator is in very good condition. It is smooth, true and does not spark. Can you suggest the cause of this and some remedy for the same?

Bayonne, N. Y. W. A. L.

[These marks are in all probability caused by an open circuit either where the wires of the armature join the commutator or in the winding of the armature.

By taking off the head and inspecting the wires closely you can doubtless detect the open circuit or by testing the same with a magnet it would be easily discovered.]

Association Membership.

Editor Textile World:

Is it possible for a country engineer that does not hold a first-class license to join an engineers' order?

Lunenberg. F. L. A.

[Would say that the National Association of Stationary Engineers and the American Order of Steam Engineers both have an examination by which they assure themselves that the applicant for membership is an engineer. The examination is not of course a difficult or technical one, such as might be required of an engineer applying for a first class license.

The aim of the associations is to take engineers who are desirous of bettering their condition and educating them through lectures, talks, etc., at the meetings, so that they may become first-class engineers.

Should by all means advise your making an application to join as it would undoubtedly be one of the best paying investments that you could possible make.—Ed.]

England's Textile Machinery Exports.

The returns relating to exports of textile machinery during September, are more than usually interesting. They show that the steady expansion, month by month, previously noted in these reports, has been maintained. With three months of the year yet to run the exports of textile machinery are already nearly five millions sterling. Last month they were a little less than half a million, as will be seen from the table presented below compiled by the Textile Mercury:

	September.		
	1894.	1895.	1896.
To Countries in Europe	£280,772	£306,629	£298,810
To United States	23,951	37,193	24,954
" Countries in So. America	14,417	19,490	8,308
To British Possessions in So. Africa	—	—	218
To British East Indies	49,765	55,507	73,058
To Australasia	1,056	971	1,362
" Other Countries	37,197	32,006	81,637
Totals	£407,158	£151,796	£491,347

	January-September.		
	1894.	1895.	1896.
To Countries in Europe	£2,678,457	£2,880,105	£2,965,351
To United States	146,474	321,331	419,328
' Countries in So. America	193,851	209,370	135,882
To British Possessions in So. Africa	617	1,259	6,071
To British East Indies	571,313	561,078	920,573
To Australasia	2,835	8,171	12,074
" Other Countries	394,795	515,118	557,691
Totals	£3,988,342	£4,496,432	£4,956,970

The most noticeable feature in connection with these returns is the large increase in the Indian demand, amounting for the nine expired months of the year to over £350,000. During the past few weeks exports to China and Japan have been brisk, and the year's business also shows a considerable growth over the figures for 1893 and 1894. The exports to the United States for first nine months, exceeded 1895 by 30 per cent., and were three times the amount for corresponding period of 1894.

COTTON DEPARTMENT.

Looms and Loom Fixers; Weavers and Weaving Rooms.

Abstract of a paper read before the N. E. Cotton Manufacturers' Association, by Alfred Hawkesworth, Montreal.

II.

Continued from October.

A loom fixer should be a man of clear judgment and even temper. He should have a practical knowledge of weaving, and know the difference that a close heavy weave requires from his looms when changing from light to heavy cloths, and vice versa.

He should likewise be a fair mechanic, and know how the parts of a machine should be adjusted to run smoothly. Loom fixing should not be done by rule of thumb, but rather upon certain lines of cause and effect. In a mill where goods are constantly changing from heavy to light and medium weights, he should adjust his loom to meet the conditions, and not wait until the weaver calls him for a smash or broken part of a loom or picker stick.

This is the evil of loom fixing—"waiting for the weaver."

A heavy weave requires a more accurate throw of the shuttle, more power on the picking arrangement, the harness straps adjusted with more nicety, the letting off carefully tightened to resist the more frequent and harder beat of the lay. The binders in shuttle boxes and the temples should be looked over; more will be required from them. The heel strap on the Stearns motion, on account of extra power, will require tightening, and the lugs will undoubtedly have to be drawn forward slightly. In changing to light goods the loom should be eased in every direction that the weave will allow. A lower whip-roll will be necessary, for yarn will not require to be loose, and goods will weave evener if it is kept just a little higher than the shuttle race. This seems lots of work for the loom fixer, but he will find it pays; he will get less calls from his weavers if he will take these things upon himself. He should never try to fix looms with an oil can. Looms should be regularly and systematically oiled, so that all parts will run easy. A good loom fixer will be interested enough in his work to occasionally study certain cloths he is weaving, and see that the proper tension is kept upon the warps as they are reducing in size. Narrow and irregular width goods are made by neglect of tension. He will also see that worn out straps and cracked picker sticks are removed, as well as parts of the picking motion, if they are much worn. He will likewise be slow to increase power upon his picking stick, and rather seek for some other way of running his looms, than by the forcing process.

A good loom fixer can be a very important factor in producing a superior quality of cloth from his section. He can also add to the product of such a section, but he must do it upon the lines I have mentioned. He must humor his looms, as it were, study each kind of goods he is making, and give each the best chance it can get from the loom. Some men can, and all looms will do better if conditions are made favorable to their running at their best.

A loom fixer can likewise run his looms cheaper if he studies their needs; he will have less breakage of parts, his harnesses can be made to wear longer than if they were carelessly hung with either too tight or too loose straps. If light goods are strapped too tight on

cams, sheds will be larger than necessary, and both yarn and harness will suffer by friction. If heavy goods are strapped too tight the loom will labor too hard at the time when the power of the belt is required to throw the shuttle. The rule should be to strap the harness to the cams proportionate to the goods being woven. A loom fixer should always use a washer under a nut when needed. He should not try to fix his looms with a hammer, nor practice tightening small bolts with a ten-inch monkey-wrench. He should have a nice sense of the fitness of things. The binding of his shuttles for check in the shuttle box should be avoided. The heel spring and check strap should do considerable or nearly all of the checking; his shuttles will then come to rest without recoil.

Cop waste is a great loss to a mill, and a loom fixer can prevent a great deal of it. One hundred Whitin, Colvin, Mason's or Lowell looms can be run at regulation speed for supplies, including shuttles and harnesses, for about $400 per year.

When sections cost more to run, as a rule there is less product, and it is of an inferior quality. Sections should be run by the loom fixers, and not loom fixers by the section. As manufacturers, we should demand a higher order of loom fixers, so that we could rate them as good mechanics. We can wear out our looms in a few years if we choose, but while it is being done we are getting a poor quality of goods and a gradually lowering product.

Weavers.—By weavers I do not mean those that oversee weaving, but those that actually do the work, that tie the broken threads and replenish the shuttle.

Invention has done much to improve our yarns and machinery, both in and out of the weaving room, and thus makes it much easier to master the "art of weaving" plain cotton goods, but we still require the services of the careful weaver, even in mills making the lightest and cheapest goods.

Perfect weaving is scarcely thought of in the making of ordinary goods, but what will pass in the market seems to be sufficient. This practice is likewise carried into the finer and more expensive goods, and percentage of product is now the greatest factor of modern weaving. Let me say here that our American goods have always been defective when compared with those made in foreign countries, and not always in the quality of the yarns used, but in the care taken by the weaver while goods were being made. It is a commendable idea to make our yarns so good that the weaver has only to tend an automatic machine, to "press the button" as it were, and the loom does the rest, but we must be careful and not carry this thing so far that our place in the markets of the world will be that of seconds in our own.

The broken warp threads require nicely mending, and the few picks of weft taking out or "unweaving" that have been placed in position before the loom could be stopped. The half or tangled pick of weft must be pulled straight or taken out when the shuttle is changed, and the skill of the weaver, known only to himself, must be used to prevent the mark from showing in the goods. There is great difference in goods of all classes, produced on the same looms, in the same room, and from the same yarns. Where does it come from? We must place the credit to the weaver. The higher the class of goods the greater will be the difference. Do not think I am arguing in this manner to discourage the use of the Northrop loom, for I am not. The Northrop loom has come to stay; it will find its place, and the idea of automatic weaving will be carried further than the most sanguine promoters of the above loom can now conceive, but I am sounding a note of warning in the direction of perfect woven goods, both from the

loom itself, and by the care of the weaver. Our future vocation in New England as cotton manufacturers will be that of making high class goods, and we must look well to ourselves, and see that we do not sacrifice quality for product and cheapness. The great diversity of goods that each mill is now called upon to make requires that we should have trained weavers that understand how to handle a great many kinds of goods. Experience has taught me that to get the largest product of the best quality from my looms I must have a weaver upon them that is accustomed to that particular kind of work, and I could maintain a standard for a class of goods better, by being slow to change a weaver's work, and thus retain the benefit of his training. We may not wish, nor do we, to bind the weaver to his loom for years of apprenticeship, but we can and should appreciate faithful service, however so humble it may be.

Some mills discriminate against men weavers, preferring girls on certain kinds of goods. I do not think we get either more or better goods per loom on this account. Careful weavers are known by their work. Heavy work upon wide looms is mostly operated by men, the labor being unsuited to girls.

Good yarns properly prepared and put into looms suitable for the class of goods to be woven, and tended by weavers of experienced, would be likely to furnish us with good cloths, but a weaving room built and furnished upon the best lines of modern practice is a most wonderful help in accomplishing the results above mentioned. A weaving room should be built with due regard for light, but not too much sun. It should have solid floors so that looms will stay where they are put. It should never be less than twelve feet high nor much higher. It should have natural means of ventilation. It should be built at least three times the length of its width and placed east and west where it is possible. Driving belts should be from below unless the room is a basement. Weaving sheds I am not in favor of; I think better results will be got from the lower floors of a mill.

In building weaving rooms from east to west, we to a certain extent and part of the year, avoid the direct rays of the sun. Practical weavers know that looms further away from sunlight give better running work. The north side of a mill is known as the best place in the room to put heavy or fine work if on that side there are no obstructions to light. A good overseer will always put his hardest weaving on that side for reasons of moisture, "not being so dry on that side" and therefore weaves better. The driving belts in a weave room should be from below, their electrical influence is not good for the work and you will get more light with them out of the room and less oil from overhead shafting.

Some method of artificial moistening should be placed in every weaving room, of sufficient height above the looms so that it will condition the air rather than effect the warp at once. Sunlight must be overcome by artificial moisture; its heat and electrical influences are injurious to the proper condition of the atmosphere to good weaving. We should endeavor to carry all the moisture that a temperature of 80 degrees will sustain, with a constant renewal of lighter atmosphere from above that will hold the lower air of the right weight to effect and mollify the warps. The moisture should not be such as to saturate the atmosphere at a low temperature, but steam should be used to prevent this and give the necessary heat to enable the room to carry sufficient moisture and the upper ventilation will prevent the temperature from rising too high.

Under the above arrangement a low studded room will soon either become too hot to get the benefits of the mois-

ture or the atmosphere will become saturated at low temperature and hinder instead of helping the weaving. A very high studded room is harder to condition and is easier affected by outside weather than one of medium height, and while you must not strive to put heat and moisture enough into such a room as to cause saturation or "dew point," such a room can be held at a proper temperature and carry a large quantity of moisture. Fans for ventilation prevent the proper conditioning of the air and should be avoided as should all currents or draughts. Ventilation should be from above and enough of it allowed to keep the atmosphere in the room fresh and healthy. A weave room should have alleys or passages on the back of each line of looms running lengthways of the mill for facility of changing warps and for carrying cloth and weft to and from the looms. The looms on each section should be numbered consecutively for convenience in keeping weavers' accounts and for facility in tracing imperfect work of looms or fixer. Section benches should be provided for each loom fixer convenient to his section. Cloth racks should be near section benches, one for about 200 looms, so that order and neatness may be encouraged among the weavers. A place should be provided in all weaving rooms convenient to all sides of it where imperfect goods can be overseen.

Slashing.

The mechanism and methods of cotton manufacturing have always been subject to spasmodic change. Some man, or men, became enthusiastic over some new features in carding, and all ears and eyes are turned toward it. Then the pickers and openers come along in the same strain and so on, until the whole mill is covered. Frequently the new invention to be introduced involves the modification of other processes, if it is to be a success. Oftentimes machines are handicapped by processes preceding and following them, such as the mule, ring frame, spooler, warper and slasher. Certain immutable principles govern these processes, no matter what inventions may be made. Recall here the old truism that all change is not progressive.

In sizing, the yarn in the warp must have a coat at least, or have an element embodied in its fibre that will act as the wax used on thread by the seamstress, or who more frequently runs the thread through the mouth, giving it a coat of saliva, strengthening it by keeping the fibres close together, so that friction will not fray the thread.

This is the principal feature of slashing, or dressing yarns, though there are requirements to meet, which the finish of the goods can be best put into the yarn at this process, causing the ingredients used in the size to be made up very differently. For instance, a little extra clean tallow in the size will impart a soft feel with a certain lustre, resembling the natural gloss of the better grades of cotton. I know some will say, "I have made size for years and never put in any tallow except when the size foamed in the box." I have made plenty of this kind of size, but I knew what it was for.

When the selling agent tells the mill agent the kind of a finish he requires on certain classes of goods, and the agent notifies me to use ingredients that will attain the desired result, I must use the materials to give it, for the storekeeper knows what his customers call for, and so orders from the drummer. Suppose I was told to put into the batch of size for a specified kind of goods, extra amount of tallow. If I am not posted in the matter, I shall get left, for if the quantity of tallow used in the former batch saponified well, it stands to reason I shall need more acid and more alkali to make the second batch saponify equally. If this does not take place, the melted tallow will float on the top of the size, and though it may be worked into it, while boiling in the size box, and churned about more or

less by agitators and immersion rolls as well as copper rolls (being well pressed by the jacketed rolls), yet it has by no means become a part of the mass of size. Thus it loses its principal effect, for while it may serve to lubricate the harness, it is gone before the loom reeds are reached.

The other ingredients not being able to form a properly saponified size without it, the size is chafed off by the action of the reed, making the cloth nappy. Then the weaver complains of a "slack size." In some mills where the harnesses are made at home, it is found the eyes are not attended to, as in those bought from the regular harness making shops. In some of these cases I have seen eyes left so gummed with size that the drawing girls abominate a new harness, as they have to poke, poke, poke with their hook to force it through the size. Not being paid to fix the harness eyes, they are content to get the thread through anyway. What kind of sizing can resist the action of this kind of harness? These eyes act like a knife on the yarn, at top and bottom, as they move up and down, and like a rough rasp, as the yarn passes through them. This leaves the yarn in a poor condition to resist the friction of the reed.

Warps often suffer from poor loom fixers. How can you expect harnesses and reeds to be properly set under such circumstances? No matter how well the warps are dressed, the cloth will never look as it should. Under such conditions, it costs the company much more for sizing material. I have been in weave rooms filled with the mist of flying sizing material, while the sweepings from the room were prodigious. On going to the dressing room to inquire why such heavy dressing was used, I was referred to a fixer, who asked for all the "slack sized warps," the regular run being too hard for him, while they just suited the others.

Then there is great difference of opinion as to the time of cooking the different sizes. I will take this up later. SAUL.

To be continued.

Cotton Manufacturing in Japan.

Abstract of a paper read at the N. E. Cotton Manufacturer's Association meeting, by Robt. P. Porter.

The cotton spinning and manufacturing industries of Japan should be studied in connection with the same industries in India and China. The debatable question is: Is the future site of the cotton spinning industry to be China or Japan? Certainly both countries are making progress, and at this stage of the game it is difficult to make a forecast of the future. The Japanese began spinning cotton by European machinery about sixteen years ago. The oldest mill in Osaka dates back only thirteen years, the average age of existing mills not being over five years.

The close of this year will probably find about 1,500,000 spindles in operation in Japan. In this time the grand result has been the substitution of factory for homespun yarns for domestic purposes. The next step will be for Japan to compete with imported yarns Between 1867 and 1877 cotton yarn represented 35 per cent. of all the importations into Japan. This, no doubt, led to the government buying cotton machinery of England, and by giving private corporations easy terms of payment, resulted in firmly establishing the industry. Cotton spinning alone gives employment to over 10,000 men, and more than 30,000 women. By the end of this year the number will be considerably augmented.

The low count yarn manufactured in Japan under 20s has prevented the import on Indian cotton yarn. Figures show that Japan has already attained the desired result in the matter of competition, and that she has succeeded to a large extent in competing with the imported article, but there still remains the work of stopping the import of much Indian cotton yarn. Japanese are, perhaps, prouder of the cotton spinning industry than any other.

In a recent address, the vice-minister of agriculture said: "Cotton yarn is

the first merchandise manufactured in this country by machinery after European style, to be exported. I think no other industry offers such promising results."

Sixty per cent. of the whole consumption of cotton yarn in Korea during 1894 was supplied from Japan. For the same period, China imported cotton yarn valued at $31,522,583 (silver), of which Japan shipped nearly $1,000,000 worth, or less than three per cent. At least 90 per cent. of the cotton yarn imported into Hong Kong comes from India, but Japan is preparing in the near future to wrest the bulk of the yarn trade from India and England, to say nothing of Australia, which in 1894 imported cotton yarn valued at $22,837,020 (silver). The tendency in Japan the next ten years will be from coarse to fine yarns. This will help American cotton. Of late, cotton cloth of very fine thread is becoming popular. In making fine counts, like the English yarn, the raw cotton produced in the United States is required, China and India cottons having too coarse fibre. Accordingly, the Japanese feel the necessity of providing ready means to import American cotton, which will require special banking facilities.

The importation of cotton from the United states is fully double what it was in 1893, and is increasing very rapidly. The report of the Cotton Spinners' Union for May 1896, showed that there were in the kingdom 67 mills with 607,505 straight spindles, 86,404 slanting spindles, and an addition of 453,136 spindles soon to be put in operation, making an aggregate of 1,147,045 spindles. On Dec. 31, 1894, 59 mills were in operation, with 523,696 spindles.

In these factories the average hours of labor are 22 1-2. The straight spindles produce an average of .88 pounds of yarn a spindle a day, while the slanting spindles average .60 pounds. The largest factory employs 1087 men and 37,032 women. The horse power in operation aggregates 15,595. The average consumption of coal per horse power being 3498 pounds an hour. Nearly all the machines in use are of English manufacture.

The profitableness of the industry may be judged by the fact that six new companies have been formed to operate about 101,000 spindles. The average net profit a spindle during the first six months of last year was $2.97 (silver); in the last half of the year it was $3.78. The greatest profit a spindle was $6.76. Spindles in operation last year consumed 15,036,633 pounds of raw cotton, and turned out 12,718,750 pounds of yarn. The average price of yarn was about $93.45 (silver) for bale of 400 pounds. The wages of the highest priced men spinners averaged about 12 1-2 cents a day; of the best paid women, about 6 1-2 cents. In some cases, even in the better districts, pay is as low as 8 cents for men, and 4 to 5 cents for women.

In some of the mills there is a system of prizes for faithful service; in others, an increase is given three or four times each year, while in still others, what is known as an extra, amounting to about 10 cents, is given to the most industrious workers semi-annually. In still other mills there are prizes for uninterrupted work, 10 cents for one month, 20 cents for three months, 65 cents for six months, etc. For those who renew their contract of service, after the articled time of three years, prizes are almost doubled. Moreover, girls who are not absent from their work during the period of three years receive a special prize of $15 (silver); for five years, $25 (silver); seven years, $35 (silver). In many of the mills, voluntary and compulsory systems of saving are in force. On all these deposits, 10 per cent. interest is paid, although if a girl leaves the factory before the end of the term of three years for which she enters, her compulsory savings are forfeited.

The girls almost invariably live in the

boarding houses connected with the factories, where they are charged one cent a meal. The youngest employees, when they live at home, receive only 2 1-2 cents a day, but if they agree to lodge and board at the factory houses, they are allowed 4 cents, besides getting superior meals. Boiled rice, vegetables, rice and bean soup, fish and pickled radishes are the principal articles of diet. On holidays there are special lunches. The employees in each factory have a distinctive uniform, for which they pay $3 (silver), in four or five monthly instalments. Everything else required, such as shoes, umbrellas and bed clothing, is furnished by the mill. Some mills have recently undertaken the education of their employees. The girls are divided into two gangs, averaging about 11 hours work each. When full of orders, they work about six hours extra, for which they are paid 4 cents. They have five or six holidays during the year, and a week at the beginning of the new year, besides securing several hours' rest each week while the machinery is being repaired. The sick rate is very low; out of 1700 girls, not more than four or five cases of illness being reported daily. A regular physician is on duty at each factory, and girls who are sick are allowed one-half of the lowest wage rate obtaining in the mill. In case of suffering from an injury received while on duty, such as machinery breakage, the full amount of wages is allowed until recovery, beside a consolation gift upon resumption of work. The maximum charge for medicine is 1 1-2 cents a day; in case of protracted illness the girl being allowed to pay on the instalment plan. When the factory physician declares a case incurable, the mill defrays all expenses incurred for medical attendance, and pays her traveling expenses to her home.

In many mills the operatives have relief societies, to which in the larger mills, officers and employees contribute as much as $250 (silver) every six months. The majority of sickness consists of lung trouble. In engaging operatives, the factory, as a rule, advances to each a sum sufficient for traveling expenses, the amount to be refunded within two years. At the end of a girl's three years of service, her employer usually presents her with a sum sufficient to meet half the expenses of returning to her home. Most of the girls are engaged through agents, who are paid 10 cents down, followed by payments of one cent a month during the term of service. These agents serve as guarantors.

The great activity of industries in the interior has recently resulted in a perceptible scarcity of employees.

Among the fabrics exported are: White cotton piece goods, corrugated piece goods, black dyed piece goods, cotton flannel, towels and shirting. The bulk of the exports are corrugated goods and cotton flannels, the majority of all the goods going to China.

Now for Chinese competition in the cotton industry, the most vital question is before Japanese spinners. The advocates for Shanghai as a site for spinning factories argue that Japanese mills have no prospect of being able to compete in the Chinese market, because Shanghai factories will always have at hand an abundant supply of raw material, which the Japanese must procure from abroad, and will be free from the burdens of freight, marine insurance and duty, which last would have to be paid twice, once on the export of the raw material from China, and again on the import of the yarn into China.

They also assert that the Shanghai manufacturer can command an even more abundant supply of labor, at least as cheap as the cheapest in Japan, inferior to the Japanese in intelligence, but superior in strength, docility, faith in observing agreements, and perhaps in endurance.

The Chinese mills run night and day the year round, with every sign of prosperity. Japanese who have inves-

tigated say the accessibility of raw material at non-prohibitive rates in China depends entirely on the good will of the local official. On cotton for export their exactions in the form of transit dues are limited by convention, but on cotton carried to Shanghai to be used there for the manufacture of goods intended for sale in China, they may impose whatever rates they choose.

The Japanese assert that raw cotton, bought in the interior of China, and transported to Shanghai, may be put on board ship after paying an export duty amounting to about 3 per cent. ad valorem, together with commuted lekin, amounting to 1 1-2 per cent. After adding the cost of carriage to Japan, the total would not exceed 12 per cent. This, plus the original cost, would be the price Japanese mill owners must pay. The Japanese assert, on the other hand, that the cotton intended for manufacture in Shanghai and local sale, cannot have the privilege of commuted lekin. Consequently, the Shanghai mill owner would be likely to find the original cost of the cotton enhanced by taxes aggregating from 20 to 30 per cent., in lieu of the 12 per cent. which would suffice to bring it to Japan. It is not likely that cotton growing in Japan will ever cut much of a figure. The Japanese realize this, and are therefore making a concerted effort to cheapen the freight charges on raw cotton between the United States and Japan. This lies at the bottom of the steamship subsidy.

The Japanese understand that future cotton spinning in that country rests in no small degree upon their ability to secure American cotton. The Japan Mail recently said: "We wonder if it has ever come to the knowledge of American statisticians that Japanese cotton mills turn out double the quantity of yarn a spindle that is produced in England, and from 30 to 40 per cent. more than those of Bombay. We doubt if Chinese hands or foreign owned mills in Shanghai will ever show a better record. In the early days of Japan's spinning industry it was suspected that the fine dividends declared were taken in part from capital funds, but as year follows year, without change, unless it be still larger dividends, we are constrained to admit that the mills are thoroughly successful. Including the import duty hitherto levied on raw cotton entering Japan, the manufacturers had to pay 7 1-2 per cent. more for raw material than mills working in India under foreign management. Yet Japanese spinners have beaten the Indian almost out of the field." The Japanese vice-minister of agriculture recently, in discussing the advantages and disadvantages of this commercial competition to be undertaken in China and Hong Kong, said: "The freight from England to China is far greater than the freight we shall have to pay to ship our cotton yarn to China or Korea. India, too, has to pay a higher freight. As to the quality, Indian yarn is of a yellowish brown color; ours is pure white and bright, and Chinese consumers consequently prefer it. Our manufactured yarn excels in quality that produced by our Indian rivals, and is better liked by the larger consumer. Indian spinners, however, have the advantage of being able to buy raw material much cheaper than we, as a large quantity of cotton is grown in India. They can also command much capital at cheaper interest than we. In addition, they have more experience. On our side labor is cheaper, and we have cheap coal in abundance, beside, our people are progressive in the matter of machinery."

It is not likely that this remarkable development of cotton spinning, and of the manufacture of cotton cloth in the far East will affect the United States very much, so far as its manufacture of cotton is concerned. It may increase the market for our raw cotton. Great Britian will be the real sufferer.

WOOLEN DEPARTMENT.

Worsted Cheviots.

Every year there is some fabric which holds the attention of the trade, and for the time being this fabric is the worsted cheviot. Whenever it is found that any cloth has sold largely, almost every commission house will get out a line of samples of that fabric. In one season fashion's demand will be for clays, and nothing but these will sell to any large extent; then again it will be cheviots, and at present it is worsted cheviots, and the reason this fabric is having such a large sale, is the ability to produce a sightly piece of goods at a very low cost. These worsted cheviots were brought out late in light weights, and have had a large sale.

The firm which deserves the credit of putting out the first line is Stockton & Drowne, who placed one on the market for $1.00 per yard. These goods have been copied by a great many manufacturers, at prices far below the original, but the superiority of the original goods is shown by the fact that while we believe an inside five per cent. was given for a time, this has been done away with, and the goods sell at the full price.

The only way to make worsted cheviots that will be sightly is to make them of all pure worsted, for being made of the clear stock they retain their lustre after making up, and handle and look better in the suit. They should not be made half wool as some lines are, for this brings, after sponging, a hairy nap on the fabric, which is very objectionable to the buyer, and obliterates the lustre of the worsted used.

These goods will sell largely in heavy weights, but the principal factor is the style. They should consist of large plaids, and the more broken up the effect of the large plaid is, the better they will sell. The plaids should be overplaided with red or green, and the ground work of all these styles should consist of browns and olive browns combined, the darker browns predominating.

The popular prices in light weights have been for one half wool, 80 cents, another all worsted 92 1-2, and the line spoken of previously.

Finishing Worsted Cheviots.

These goods are first to be divided into two classes, namely, fancy and piece dyes, which in the nature of things require separate treatment at some stages of the process.

As far as the burling is concerned, the same care has to be devoted to one as to the other, but when the mending is reached it will be found that the fancy cheviot requires by far the most care. When the burlling and mending have been properly performed and the pieces have been carefully numbered, let us follow them to the fulling mill.

It is found here that they are about from 70 to 72 inches wide making it necessary to shrink them from 13 to 15 inches sideways. The finished weight wanted compared with the weight of the goods from the loom will soon tell if the goods need any shrinkage in length, and if so, it will have to be given. It is always well to consider these things carefully before the goods are put in the mill so as to be sure of what is going to be done before the start.

Having determined upon the line of action, put the goods in the mill and when that has been done they are ready for the soap. This is a very important

question to consider and involves much of the success of the whole operation. Worsted cheviots differ materially from worsted goods in general, because one is called upon to disregard the essential property of worsted.

Having the fibres all laid lengthways in the combing process, it is quite a hard matter to felt these goods and it therefore requires a soap of very good body and of a strength consistent with the colors.

It is easy enough to produce a good bodied soap, but unless the body is lasting there is very little use of having it. It is economy to procure a good hard soap, and with that, the battle is half fought. Palm oil fulling soap is very good for general purposes and will do for this kind of work, but it is improved by adding a trifle of good tallow soap, in order to obtain body. The great objection to using a tallow soap altogether, is found in the fact that it is very hard to get out of the goods, but when used in combination with a palm oil soap, it will be found to work all right.

When goods have been properly fulled which will be in about two hours, take them to the washer and give them a good dose of warm water, letting them run about twenty minutes.

Then draw off and add another supply of warm water and give fifteen minutes more, then open gates and rinse with warm water for a while, if convenient, as it will remove the soap better, and finish up with about thirty minutes in cold water. The piece dyes are now taken out and are rolled up tightly and left for the next day. The fancies on the other hand, are treated to a solution of Fuller's earth and water made as follows: Take two pails of Fuller's earth (refined prefered, this being free from grit), and put it in a barrel of water when it will dissolve at once, and after stirring a while is ready for use. Two pailfulls of this solution are added to each piece in the washer and the goods are let run fifteen minutes in this, and after rinsing for five or ten minutes more, are ready to come out. Also roll them up tightly and lay them down to drain and next morning take them off the rolls and extract and dry them. In most cases a simple squaring up of the nap on the shears is sufficient, but this part is regulated mostly by the taste of the buyer. The goods are then ready for the press as it is rarely necessary to speck them.

The piece dyes are taken and unrolled and are given a nip on the steamer which will brighten them up some and after coloring they are also given the Fuller's earth bath which will greatly help the feeling. The shearing, etc., does not differ from the fancies. A good solid pressing and a little steam after the pressing will make them fit for the measuring and rolling process after which they are ready for the market.

Kerseys and Kersey Colors.

The immense sale which the kersey fabric has had in the past few years, has led many observers to believe that the sale of this fabric is on the wane; but it is not the fact, as the present condition of the trade will prove. There has been and is large demand for kersey fabrics at one dollar per yard. The cloak trade has had a large run on this fabric, and the clothing trade has also made large purchases.

One clothing house in Philadelphia has used an enormous quantity of these goods, having the garments made at Baron Hirsch's colony in New Jersey, and selling them at a very close figure. It has been said that they pay but 97 cents an overcoat for making, so that it is hard for legitimate trade to compete with them.

There has been, during the past few months, a great tendency to unload stocks, and in many instances clothiers have been able to purchase what would be called "bargains," thus interfering with the regular order business. In

these columns, some months ago, it was predicted that the dollar kersey would be the popular-priced fabric, and at present, such is the case, and the buyer, in most instances, objects to paying more.

For the coming season, while higher priced goods will sell, still it is evident that the great number of different priced fabrics which have sold in previous seasons will not sell so readily in this, the tendency being, on the part of the buyer, to make a distinct difference between the various prices of fabrics used, and from this tendency it seems probable that the $1.25 fabric, which has previously been a popular one, will be in a measure dropped, and the $1.00 and $1.50 fabrics be the principal sellers for cheap and medium grades. These show a difference in the garments when made up, and this is what the buyer desires.

The next price above $1.50 will be $1.75 or $1.80, and then $2.00 and above. There are many makes on the market in high-priced goods which have stood the test of some years' selling.

After the consideration of the fabric, the next thing is the colors to make. For some seasons only black and blue have sold, and during the past year, blue has sold twice as well as black, but there seems to be an increasing demand for browns, and the tobacco shades which have a chocolate tone to them will undoubtedly sell.

The cloak trade wants light tans, and has been using the lightest shades of cream tan and coachmen's tans.

The following is a good line of colors for a line of kerseys: black, blue, dark green, dark olive, brown, black oxford, three shades of drab, two shades tobacco brown, dark and medium, and two shades of light tan. This line of colors contains nearly all the shades required, and while mixes do sell, still their sale is not large enough to pay for the expense of samples.

With the popularity of the dollar grade, there will be a demand for a cheaper fabric, for some buyers always endeavor to get a fabric under the popular price. These can be met by getting out an "all wool" kersey for 95 cents; of course the grade of the wool and the quality will be nothing extra, and the weight will be largely gained by the use of shoddy.

Wool Crash.

The term "wool crash" is probably a new one to the large majority of people, but it is applied to a woolen fabric, which is what the name signifies, "crash," only instead of being made of flax, wool is used.

This fabric is constructed from a medium and coarse worsted yarn. The warp has about one-fifth as many more ends as there are picks in the filling. The fabrics in light weights had 52 warp ends to 44 picks of filling. This piece of goods had quite a sale as 70 cents for summer suits, and there bids fair to be quite a demand for them in heavy weight fabrics.

The yarns used in both warp and filling should be mixed yarns, and some of the grayish combinations are best. A small percentage of green mixed with a gray and used in both warp and filling yarns makes a good style. The same gray or stain mixed with a green and brown, and used in both warp and filling, also makes a good style. Some of these styles are made by putting in nub effects in the warp; the nubs are of course small, but as the fabric is made on the plain weave they show very well.

Another change on this fabric is to overplaid it with twist yarn in squares about two inches square. The overplaiding used is either a green or red, twisted with a gray or stain end. This fabric should weigh about eighteen ounces, and to be through and through will be quite coarse in heavy weights. It requires practically no finishing, as the appearance is very little changed from the way it looks on the loom.

Finishing Wool Crash.

This line of goods calls for a slight departure from the general treatment of all wool goods. In the initial process, the burling is simply a removal of ends of threads left by the weavers, and also of knots. The latter must be drawn to the surface and cut. The goods are sewn in sets of six to eight pieces, making one string, and are taken to the washer where they are properly cleansed. The liquor used here should be made with a view to cleanse quickly, and therefore the amount of alkali should be as large as is consistent with preserving the brilliancy of the colors.

Having properly cleansed the goods, they are taken to the crabbing machine, and are here given two nips; that is, one application to each end. They are then taken to the drying machine, and when dry are carefully perched.

As the goods do not receive much handling and are not exposed to the action of soap and alkali to any extent, they should be sufficiently clear to admit of their going immediately to the press.

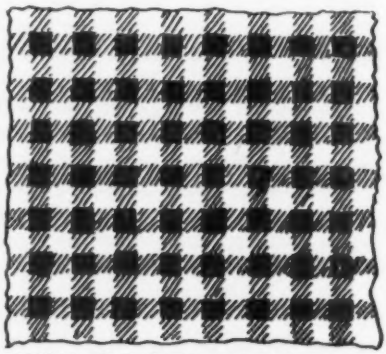
If not clear enough, and it must be borne in mind that it is one of the characteristics of the fabric that every thread shows plainly, still not have the goods threadbare or clean of fibres; a run or two on the shear will remedy this defect. If properly handled, this will not be necessary, however, for it adds unnecessarily to the labor cost.

Fancy Backs.

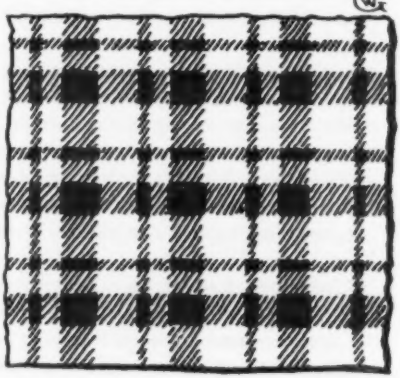
The coming heavy weight season will see more of a demand for fancy backed goods than there has been for some time. The demand for these goods in medium weight fabrics was referred to some time ago, but the coming season will see a call for them in heavy weight fabrics, and these will be used principally for ladies cloaks and jackets, and so will be taken by the cloak trade which does not buy goods until after the clothing trade is all through.

The fabric which will be sold principally in heavy weights is on the face a plain twill which is gigged and the nap left on to give the face a smooth appearance and a soft feel. The back is also woven on a twill and consists of plaid and check effects as shown in the illustration. The back and face must of course each have a perfect system of warps and filling so the fabric is a regular double cloth.

The plaids should be woven in bright



IDEAS FOR FANCY BACK PLAIDS



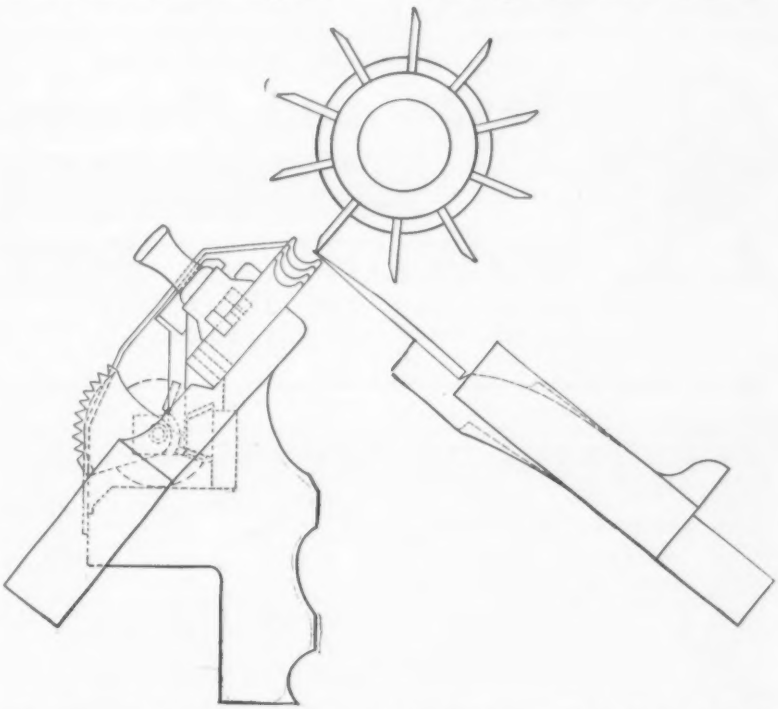
colors and the reds and whites and greens are probably the best shades to use in their dressing. The fabrics should not weigh more than 25 ounces and be firm.

There is also a demand, a moderate one, for a covert cloth with a fancy back. The covert cloth should be woven on a five harness satin and in the usual live brown and green colors, and the fancy back should be in the same brilliant colors as is used on the twill fabrics.

A Knot Saving and List Saving Rest.

The cut herewith, shows the new knot saving and list protecting rest, made by the Parks & Woolson Machine Co., Springfield, Vermont, and for which they have several patents pending.

It is designed to prevent knot holes and flock holes while at the same time it saves the list and accomplishes its aim perfectly. Hitherto, all attempts at a knot saving rest have proved failures on account of having no list saving device.



The idea is simple in the extreme. It consists of a regular list saving rest with a thickened and slotted edge. The cutting point or edge of the ledger blade comes midway between the sides of this slot so that as the cloth runs over it there is no support beneath for knots, flocks, threads or slugs to push the cloth up into the blades and skin, or cut the goods, while at the same me, the closest shearing is accom plished. The list saving device is too well known to need description and it is just as effective on this style of rest as on the solid edged rest.

This rest has been thoroughly tried in several worsted mills and has stood perfectly under the severest tests. A piece of worsted cloth may be taken directly from the looms to the shear without burling and when sheared over this rest right down to the threads will show no shear marks either in the body of the goods or in the listing.

The blades that accompany this rest consist of a flat ledger casting with a thin, long bevelled blade and a fly blade of small diameter with ten cutters set with considerable twist. This ensures smooth running and greatly reduces the friction while the greatly increased speed at which it is run gives much more shearing capacity.

One feature that will appeal strongly to manufacturers, is that it can be put on any Parks & Woolson shear with little expense, and if the list saving device should not be wanted the outlay will be still smaller.

M. A. FURBUSH & SON MACHINE CO.

224 Market Street, PHILADELPHIA.

RING TWISTER, No. 115.

Manufacturers of

Woolen Machinery.

WRITE FOR NEW CATALOGUE.

GOLD MEDAL

Reeds and Harness,

Manufactured by

J. A. GOWDEY & SON,

P. O. Box 707, - PROVIDENCE, R. I.

P. O. Box 256, - CHICOPEE, MASS.

Send for Price List before purchasing elsewhere.

FAIRMOUNT MACHINE CO.

22ND & WOOD STS.

PHILADELPHIA.

THE LATEST AND BEST LOOMS AND HARNESS MOTIONS

BEAMING, SPOOLING, WINDING, DYEING, AND SIZING MACHINERY.

POWER TRANSMITTING MACHINERY.

THOS. C. KELLOGG,

SKANEATELES, N. Y.

Dealer in and Grower of

TEASELS.

Clipped and packed to any desired size.

Teasels are grown, cured and packed on own premises.

New York Office, 96 & 98 Reade St.

A. H. KELLOGG, Manager.

Correspondence solicited. Samples free sent by mail upon application. Write for Price List No. 82.

McLAUGHLIN BROS.,

TEASELS,

SKANEATELES FALLS, N. Y.

Offer the best quality medium sizes, most evenly assorted, at the lowest prices in the market. Satisfaction guaranteed. Business established in 1832.

WM W. KELLOGG,

SKANEATELES, N. Y.

AMERICAN TEASELS

High Grades a specialty.

Sample Orders Solicited.

Friezes.

The frieze has always had a limited sale in the better grades for ulsters, but there has lately sprung up a demand for this fabric in cotton warp cloth. This cloth is made with a straight cotton warp, preferably a two-ply yarn, as it weaves faster and better, and the filling should be made of a coarse stock which will felt well. The last year has seen in this character of stuff a large sale for a fabric which has been placed on the market at seventy cents, being made on the plan already spoken of.

The colors in these goods have been mixes, except the black, blue and brown. The principal ones are white oxford and black oxford, black and green mix, white and green mix, red and oxford mix and blue and gold mix.

This fabric should be made to weigh 30 ounces and should be firm, well felted, and the hair on the face of the fabric well pressed down. These goods will only sell in the real cheap fabrics, and it would be practically useless to make samples of a higher grade for they will sell to such a slight extent as to be more of a bother than a renumerative product.

Speedy European Transportation.

Transportation of freight between European ports and Chicago has now become so perfected that goods can be taken from factories across the water and placed on sale in Chicago in less than ten days. All previous records were broken when Carson, Pirie, Scott & Co. received a consignment of goods from Manchester, which was just nine days and three hours en route. The shipment left Manchester *via* Southampton at 1 o'clock, August 8, on the American Line steamer "St. Paul." The vessel reached New York on Friday, August 14. The ship's cargo was unloaded as speedily as possible and the cases bound for Chicago were placed on board a fast freight on the Pennsylvania line at 8 o'clock the same day of their arrival in New York. The goods were received in Chicago at 7 o'clock on Monday morning. The formality of inspection was dispensed with on several cases, it being presumed that the consignment was uniform, and the customs' officers gave them over to the consignee immediately. In short order they were removed to the wholesale house, and from thence a proper quantity was taken to the State-street retail store, where they were placed on sale by noon. A placard announced the short time the goods had been in transit, and it is needless to say they were especially attractive and saleable for that reason.

The distance from Southampton to Chicago in round numbers is 4000 miles. This means that the goods were conveyed at the rate of eighteen and one-fourth miles per hour including stops, or at a greater speed than that attained by some passenger trains on regular trips. There is a possibility of this record being beaten, in case the consignment should be brought on from New York by express. The difference between express and freight time is about twenty-four hours, so the time may be lowered to eight days and some hours. The ocean time will probably be reduced gradually by minutes, but that will not be sufficient for some time to affect the time for the transit of freight between Chicago and European points.

No Foreign Patents in Japan.

No patent is granted to a foreigner in Japan. No foreign inventor, by applying through a Japanese citizen, can obtain a patent except by fraud. If a patent were obtained by a false representation that the Japanese citizen was the inventor, and it were discovered that he was not, the patent would be at once cancelled. It is precisely the same with trade marks and designs—there is no registration and no protection. The result is that all goods of foreign produce and manufacture, of which the label is worth copying, can be bought all over Japan of Japanese manufacture, and at a quarter to a fractional part of the cost of the original and genuine foreign-made article.

Chalk Talk.

These Chalk Talks are intended to work out, in a simple way, as would be done on a blackboard with a piece of chalk, before a class, such textile problems and calculations as come up in every day mill practice. Subscribers in any department of the mill are invited to suggest problems which they would like to see worked out. If any of our readers have better or shorter ways of doing these problems than are shown in these Chalk Talks, we cordially invite their criticism.

THE NUMBER OF THREADS TO USE IN CONSTRUCTING A FABRIC.

It is often required to produce a fabric on a certain weave using a certain sized yarn, and a rule to ascertain what should be the texture of a fabric on these conditions, or how to arrive at the texture will be explained. It is often necessary to produce a fabric in as short a time as possible, and instead of waiting to make new yarn, the manufacturer or designer uses that which is on hand, and to find the texture of the fabric to suit the weave is the question.

A designer of experience can usually determine, by previous practice, what will be best suited to the count of yarn and the weave, but instead of guess work, a fixed rule is the best and only way by which to determine the number of ends to use in the construction.

Suppose it is required to use a 4-run yarn, in a fabric woven on the 4-harness twill. To find what number of ends will lay side by side in an inch, which is the preliminary step, find first the number of yards in one pound of the count of yarn. This will be 4, the count, multiplied by 1600, the number of yards in one count, which equals 6400 yards in one pound of 4-run yarn.

The next step is to extract the square root of this number; this process or method of operation was described in the June chalk talk, and therefore unnecessary to repeat here. The square root of 6400 is 80, and from this number deduct 16 per cent.; 16 per cent. of 80 is obtained by multiplying 80 by .16, which give us 12.8, multiplied by 80 minus 12.8, equals 67.2 ends of 4-run yarn which will lay side by side in one inch.

But laying side by side closely is not the position they will occupy in the fabric where they interlace with the filling, therefore in the construction it is necessary to allow for the intersections, and as this is different in various weaves, it must be allowed for according to the weave. The method of obtaining the number of ends to lay in the fabric, is to multiply the number that will lay side by side in one inch, by the number used in a repeat of the weave, which in this case is 4. So 67 ends side by side, multiplied by 4, gives 268. This number is to be divided by the number in one repeat plus the number of intersections in the same; on the 4-harness twill this is 2. Therefore 4 plus 2 equals 6, and 268 divided by 6 gives 44.6 ends per inch. This is the texture to use in a fabric made with 4-run yarn and woven on the 4-harness twill.

If it is required to use 6-run yarn with the same weave, the method is the same. First obtain the number of yards in one pound of 6-run yarn; this is 6, multiplied by 1600 gives 9600 yards in one pound; the square root of this number is 97.5. From this, 16 per cent. is to be subtracted as before. $97.5 \times 16 = 15.6$; so $97.5 - 15.6 = 82$ ends of 6-run yarn will lay side by side in an inch. As previously stated, the ends will not lay closely side by side when woven, so the intersecting of warp and filling has to be allowed for. Multiply 97.5 by threads in a repeat, which are 4. $97.5 \times 4 = 390$, and divide this by repeat plus number of intersections in weave. $4 + 2 = 6$, divided into 390 gives 65 ends as the texture to use in a fabric woven on the 4-harness twill, and in which 6-run yarn is used.

Both illustrations have been for the same weave; now that a clearer idea may be obtained by what is meant in allowing for intersecting, the following case is taken. A fabric, in which 4-run yarn is to be used, and woven on the following twill: three up, one down, two up, two down, two up, one down. This weave repeats on eleven ends. Multiply 67 by 11, which gives 737; this is to be divided by the ends in one repeat, plus the number of intersections, which are 6 in this weave; so 737 divided by 17 ($11 + 6 = 17$) gives 43.3 ends per inch.

The use of this method will be shown when comparing fabric constructions, for if the difference in weave requires only the adding or leaving out of an end, or even two, it will show just how many.

TO FIND TEXTURE OF A FABRIC USING A GIVEN COUNT YARN.

4 RUN YARN $4 \times 1600 = 6400$ YDS PER lb.

$\sqrt[2]{6400}$

$8)64\,00\,(80$
64
00

80
$.16$
480
80
12.80

$80 - 16\%$

80
12.8
67.2 { ENDS OF 4 RUN YARN WILL LAY SIDE BY SIDE IN ONE INCH.

67×4 THREADS IN ONE PATTERN
4
$268 \div 6$

4 THREADS
2 INTERSECTINGS IN WEAVE

$6)268\,(44.66$
24
28
24
40
36

44.6 ENDS PER IN.

6 RUN YARN $6 \times 1600 = 9600$

$\sqrt[2]{96'00} = 97.5^{-} - 16\%$ 15.6

97.5^{-}
15.6
82 ENDS

$97.5 \times 4 = 390$

$6)390\,(65^{-}$ ENDS TEXTURE
36
30
30

W.Y.

THE NUMBER OF THREADS TO BE USED IN CONSTRUCTING A FABRIC

KNITTING DEPARTMENT.

The Knit Goods Situation.

Clear, cold weather and plenty of it is what is now needed to put life into the knit goods market. Orders for summer goods from jobbers, which have been straggling along, began to show some volume the day after election. The decision of the currency question has been of as much benefit in this as in other lines of trade, and the general tone may now be spoken of as healthy.

The weather during October was exceptionally unfavorable to the movement of underwear, also hosiery to a certain extent. In more than four weeks there were only seven bright days to relieve the muggy, cloudy monotony, and but three of these brought the bracing atmosphere that alone gives the knit goods business an impetus at this season.

In only cheap grades are there any stocks on hand, and these are not likely to prove any real obstacle to manufacturers, for the reason that better qualities are now being demanded, although for the very poorest stuff there is always a certain call.

In hosiery, particularly, there is a decided turn toward fancies. This makes greatly for the relief of the trade, fancies paying a larger profit. In the ordinary black or staple goods, quality is the first scrutiny. In fancies, style, design and coloring are earliest considered. Then, too, the varieties being so endless, larger assortments and purchases are the rule. In addition to the larger profits which accrue to manufacturers, the goods are more quickly thrown aside, and going out of fashion more rapidly.

In underwear there is much less chance for indulging fancy tastes, the demand for filigree being confined largely to the far West. The demands from that quarter are not expected to be materially lessened by the defeat of free silver coinage, as that section must share proportionately in the betterment in business, resulting from the increase in commercial confidence.

Prices remained firm up to election in spite of the adverse conditions for which politics were responsible.

One of the most bothersome factors is the persistent attempt of many manufacturers to see which can give the most value for a certain price. Some of these attempts long since passed the bounds of reason, the only outcome being the cutting off of each other's noses.

As is always the case, quotations on raw materials show more hardening than product, which causes the market reporters to write paragraphs in this fashion: "The manufacturers' or agents' selling prices, and the cost of production, are too close together to allow the advance of raw material to long pass unheeded." We fondly hope so.

Reports from European manufacturing centres indicate a firm tone.

Reminiscences of Hosiery Sewing Machine Trimmers.

III.

GIBBONS FRAME.

The attorneys of the association referred to in my last article felt morally sure that the Shorey patent (the circular trimmer) did not cover the invention adopted by them, but as the learned judge concluded that the *reissue* did cover it, of course the trimmer was abandoned. At that stage of the controversy it would have been folly to ap-

peal, for possessing the knowledge we had then learned of the state of the art, in forty-eight hours after the decision of the court, the writer had a better trimmer ready for the market, and made public property by virtue of Marsh's patent, of away back in 1852 (refered to in a former article).

While there may have been, and in my opinion were, parts of this device that could have been covered by patent, it was thought best to allow the manufacturers to have a trimmer that was entirely free, and thus the old Marsh principle was put into a new dress, doing good service ever since, with none to molest.

The principle of this trimmer after all is the old one of the blades advancing on the work, just as our grandmothers with their scissors have used for generations. The lower blade is set stationary, and the top one is reciprocated vertically across its edge, making a shear cut.

This trimmer suit was not confined to Philadelphia and Pennsylvania, but was quite as hotly contested in New York and the Eastern states. The writer was the instigator of a protective association, similar to the Philadelphia association, formed by the manufacturers of Cohoes, Amsterdam, Little Falls and other hosiery centres, with one of New York's worthy sons as its president.

The suit in the East was different from the one in Pennsylvania in that the plaintiff claimed the whole dog, that is, the claim in substance was, sewing and trimming simultaneously with the formation of the stitch, with the stitch equal or approximately equal to the gauge of the fabric. If such claim could have stood we would have had to sew on one machine and trim on another, and at a different time. But during the continuance of the Philadelphia suit, and after three special trips to Eastern towns, the writer found the pioneer in the trimming business, J. W. Marsh, in a small town in Massachusetts, and through finding him and learning facts in his possession, the above claim fell for the lack of novelty, because Mr. Marsh had applied his device to a machine, cut the goods at the same time they were being sewed, and could alter his stitch to any length he desired.

There are patents and patents on trimmers; the writer has examined the claims of over one hundred different kinds, or perhaps it would be better to say, different in the *wording*. In the next article I will give the names and dates of some of the best, *i. e.*, those that have or had some standing as to claims.

The Size of Yarn Required for Different Weights of Goods.

COHOES, N. Y.

Editor Textile World:

I have been much interested in your Chalk Talks on weaving, and as I have been a weaver myself, I caught on very easily. Now I should like to ask, what is the rule used for finding the number of yarn to make the different weights of hosiery and underwear; that is, for a certain weight and gauge per dozen, and will you illustrate it by a Chalk Talk? Yours truly,

T. H. C.

[Our correspondent asks a question which perhaps could be briefly disposed of by the answer "There isn't any to our knowledge;" but wishing to get the views of others on the subject, and thinking perhaps some man might have formulated some sort of a broad principle that would cover the matter, we asked the views of several of our correspondents and contributors, and append their answers.]

No. 1.

PHILADELPHIA, Oct. 26, 1896.

Editor Textile World:

Your letter of the 23rd is at hand, asking if I know of a rule to determine the size of yarn to produce a given weight of product. This is a poser. I do not know of any rule, and have my doubts if there can be any exact arithmetical calculation to solve the problem

accurately. There are so many things that cause variation in knit goods, variation in size of yarn, tight and loose wound bobbins, difference in speed, etc. All knitters that I am acquainted with learn only from practical experience what sizes will produce a certain weight of goods, and base their calculations accordingly. For instance, a stocking knit on a 3 3-4 inch head, 176 needles, No. 14 yarn, will produce a stocking 1 3-4 pounds to the dozen, if the stocking is 26 inches long. No. 12 yarn on the same machine will make a dozen weighing 2 pounds 2 ounces; No. 16 yarn, 1 pound, 8 ounces; No. 11 yarn, 2 pounds, 5 ounces. These data were all got by practical tests. Two machines of the same pattern, set as near alike as possible, will not always produce the same weight of goods. If they would, it might be possible to get a formula to base a calculation upon. You will notice in the sizes that I have quoted, viz., Nos. 11, 12 and 14, that the goods vary about 3 ounces to the number, while the number 16 is about 2 ounces to the number, so if I wanted to make 2 pound goods, instead of No. 14 yarn, I should use about a 12 1-2. I think if you found a mathematician to solve the problem, you would not find him in a knitting mill.

GIBBONS FRAME.

No. 2.

PITTSFIELD, MASS., Oct. 27, 1896.

Editor Textile World:

Replying to yours of recent date, would say I know of no rule for finding the number of yarn to make the different weights of goods. My experience of late has been entirely with wool goods, and we find such a difference in the shrinkage of different grades, and even in different lots of wool, that the best we can do is to approximate the size of yarn to make a given weight on any new kind of goods. On wool underwear we have found that for size 40 the following is fair average data:

20 gauge; yarn weight 64 grains to 50 yards, cylinder 19 inch, stitch 31 to 6 inches yarn.

Weight of cut goods (bodies and sleeves), 13 pounds.

Finished weight, 11 pounds per dozen.

16 gauge; 88 grain yarn, stitch 25, cut weight 14 pounds, 6 ounces, finished weight, 12 pounds.

Yours truly,

C. H. M.

No. 3.

DURHAM, N. C., Oct. 27, 1896.

Editor Textile World:

In regard to question asked, there is no rule, to my knowledge. Knitters have to do their own experimenting before they find what they want. From having been in the business a long time, I can tell nearly every time what number I want, and weight per dozen. I do not know any standard rule to go by. If there is any rule or general principle, I should be glad to know it, and shall be interesting in hearing what other knitters have to say on this subject.

Yours truly,

H. W. B.

No. 4.

CHESTER, ILL., Oct. 27, 1896.

Editor Textile World:

Replying to yours of the 23rd, beg to say that I have never known a knitter who had a rule for this. Long and practical experience in handling the different kinds of stock usually teaches a knitter what size to use on certain gauge and needles to the inch, and certain yarns. Ask him to produce a garment that weighs more or less to the dozen than that he has been making, and instinctively he knows what yarn to use. The chances of his hitting the exact weight the first time are small. Sometime he does it, but in many cases he finds upon weighing the first garment that his stitch was a trifle too tight or too loose, and that his garment was a little off in weight. The better the knitter, the fewer the weighings. I

hope your inquiry will bring out a knitter with a rule that will work.

ILLINOIS.

No. 5.

PHILADELPHIA, OCT. 29, 1896.

Editor Textile World:

Replying to yours of the 23d, would say that I do not know of any rule, though perhaps there may be one. I know it comes natural to any experienced man to know about what yarn to use on a special gauge to make any given weight the machine is capable of making. I should say experience is the rule in general use.

Yours truly,

JAMES TAYLOR.

No. 6.

SARATOGA CO., N. Y., Oct. 29, 1896.

Editor Textile World:

There is no rule that can be given that will always hold good on all styles and grades of underwear. Different mills and different machinery and different localities influence the results. Some knitters run with a shorter stitch than others. If your correspondent wants information on this subject, I should advise his looking over the back numbers of your valuable journal, which has touched on this and kindred subjects for years past. I would also refer him to the tables in my early letters to the TEXTILE WORLD in 1889 and 1891, and to all of your valuable tables on weights and standards used, in the December number, 1891. These tables used are as near correct as possible.

Yours truly,

OLD SUPT.

Double Thread Knitting.

The process of making two-thread plain and fancy knitting on ordinary machines is by no means novel, as such work was done years ago when automatic knitting machinery first came out. There are, however, some new features which have developed along this line in recent years, brought about through the advent of such goods as were unknown formerly, for example, fancy types of sporting cycle goods. Some peculiar styles, although made to best advantage on regular machines equipped with all Jacquard and related change pattern attachments, can be imitated very closely with double thread knitting, providing the conditions are right.

The principle of doing this work without the aid of mechanical devices which are specially intended for intricate block work, color adjusting, etc., consists in running the two or more threads into the machine together and so adjusting the feed wheels that one type of yarn is caused to appear on the face of the goods at right time and the other yarn on the back and the reverse as required to make the pattern. If the process were kept one way as would be the case in plain work, the face thread would of course be wool, and the back cotton or shoddy. If the yarns are part cotton and part wool, the same may be made to present a pattern effect if colored in such way as to make a contrast between the two. The dye will be governed to suit.

As to the best way to run in the two threads at same time, there is a process which has been tried successfully, and this is shown in the view in which the top guides of the machine are exhibited. Two feed wheels are needed on the machine and a thread guided into each. The lever *A* can be made from wood and pivoted to the stand of the machine over the cylinder and pins fixed in such way as to permit the lever to have a slight play, but also prevent its turning. The eye for the wool yarn is marked *E* and that for the cotton *F*. The two yarns are marked *C* and *D* respectively. Each strand is drawn into the central guide *B*, from thence down to the wheels. If varied pattern effects are sought the yarns will be of different colors.

The tension is a matter of import in this process and calls for an excess of

friction on the strand, that is, to show most prominently on the face of the fabric. A variation of shading may be acquired by adjusting the sinker wheel of one strand different from that of the other. It will be found best to set the wheels as close as possible without interference. By setting the sinkers so as to form varied lengths in the loops, another variety of effects is procured.

Fig. II gives four grades of designs obtainable with two-thread work. The first one in the list presents a peculiar

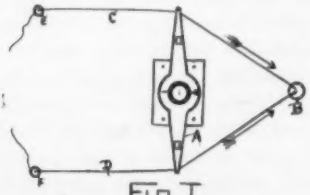


Fig I

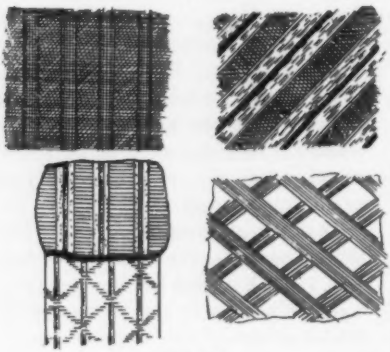


Fig II

style which is secured by causing the back yarns to appear on the surface in vertical lines. The yarns of both back and face are alike, but the stripe forms itself after the rib principal, and results in the pattern shown. To bring this about it is necessary to govern the number of sinkers in the wheel of each system according to the width of the stripe desired. As this is easily done by simply figuring on the number of blades in each wheel, and the number of needles which will be used in striping, a detailed description is unnecessary.

The second pattern is made on the same principle and is for cut goods, being made into leggins, stockings, etc., from flat web and the web is arranged diagonally in the goods. The ground work is straight knitting, the light stripe work produced by floating light colored threads and the cord-like line is the result of running two threads together in one wheel up to the point of contact with the needles in the cylinder. To do this, there must be an extra guide for the odd thread and the thread regulated so as to alternate with the other. It is a novel arrangement, but when correct, will result in some unique striped designs.

The next sketch shows a combination of the first two, and presents the same as it appears in the upper portion of a cycle stocking. The other pattern is rather difficult to obtain, but can be done with alternating sinker wheels, each being regulated to operate the delivery from the two guides containing the threads. Each wheel must be furnished with high and low blades, and the high blades in the one wheel will alternate with the high in the other on the same feed, and the same procedure occurs with the low blades of each. The number of blades in each will of course be adjusted to suit the width of the diagonal stripings. Work of this character is suitable only for heavy goods, such as are used in vests, overgaiters, leggins, cycle and hunting stockings, and the like, unless very fine yarns are used. If extra fine threads are available, fancy styles of underwear may be knitted. The texture of the goods made on the two-thread plan is always notable for its firmness, and if slightly fulled, will make garments which are durable and at the same time not lacking in the elastical features for which all knit material is noted. Among other articles which may be made are hoods, caps, tennis and golf hose, skating head gear, and similar articles. Wool and cotton mixes are very appropriate for work of this nature. It is not advisable to use all cotton as the goods will be stiff and harsh, and more so than if knit ordinarily. But yarns in which there are percentages of inferior stock may be utilized to advantage.

BOSS KNITTER.

The American Trade Viewed from a Chemnitz Standpoint.

A writer in the Knitter's Circular, in telling what the world buys from Chemnitz, says of the prevailing demands from "the United States of North America":

"Only full fashioned goods are used, and by far the greater quantity is made of cotton. Lisles are also in strong demand. Cashmeres, though not a very large matter yet, continue to be bought in increasing quantities. A nice trade is done, too, in plated goods, cotton or lisle backs and silk fronts. American-made all-silk goods have, however, now quite superseded those made in Germany. In cotton, fine gauges, varying from 1 3-4 pound to 2 pound weight for hose, and 14 ounce to 1 1-4 pound in half-hose, are the staple article. A few balbriggans, mostly not clocked, are used, but the bulk is required in black with a fair proportion of tan and slate shades. Lisles from 33 to 39 gauge are used extensively in summer, and many gauge lisle stockings weighing about 1 1-4 pounds a dozen are sold.

"Both in cotton and lisle in women's and men's goods there has been a very strong call for solid Maco feet, or Maco split feet, the rest of the hose being black. For children, socks and 3-4-hose, in sizes from 4 inches to 7 inches, in white, black and tan, are imported. 1/1 and 7/1 ribbed hose are extensively used in infants' sizes, and up to 8 1-2 inches. Most ribbed goods are turned out on ribbed top machines and have French feet. In fact all the goods sent to America must have French feet. Children's goods are largely bought in cashmere, and the bulk of them are fine gauge.

"The cashmere hose bought for women's wear are mostly plain black and fine gauge. They vary in weight from about 2 1-4 pounds to 2 3-4 pounds. The men's half-hose are similar in quality, and run from 1 pound 2 ounces to 1 pound 12 ounces. A few natural wool half-hose are also bought for summer wear in light weights. Americans always prefer fine to coarse gauges, and since the former have been got out at such popular prices, the latter have gone out more and more. There is no doubt, too, that American-made seamless hosiery has supplanted the old 24 and 27 gauge produce. For winter wear, some heavy cotton hose and half-hose, and a large quantity of fleeced hosiery, is imported, but since the duty on cotton and wool goods has been the same, cashmeres have been bought a good deal instead of fleeced hose. This, however, is not the case in the South, where cashmere is scarcely worn at all.

"Fancy hosiery in an enormous variety is now finding its way into the States. Embroidered goods have not yet been very much taken to, but printed and extracted styles have found favor. High fancies, Scotch checks, and boot patterns of every description have found a ready sale. Hose with lace insteps are very popular. Golf hose, though chiefly bought in England, have also been ordered in Saxony. Machinery is now being put up to meet the demand in this class of goods. Most styles are required in small quantities, made 36 inches long in the leg, and in opera shapes. A good trade, too, is done in extra wide hose, 6 1-2 inches under the welt."

He feels obliged to remark that Canada is now using goods abandoned by the states five or six years ago, and follows with the statement that much inferior styles are required in the Dominion.

Fashion's Decree in Colors.

The colors that are demanded in ladies' hosiery are considerably influenced by the popular shades in ladies' dress goods, for although the staple colors, and especially blacks, form the majority of the demand, there is al ways a considera ble sale for hosiery to match dress goods shades which Fashion decrees are popular. The dry goods

papers are discussing this question, and predicting what colors will be in most demand. Paris dictates the fashion in colors more than any other centre, and the French color cards which are issued at the beginning of each season are tacitly acknowledged to be authority.

The Dry Goods Reporter says: The Russian coronation ceremonies with their gorgeous display of color seem to have set the pace for this fall. Rich but harmonious colorings are the keynote of the season. Distinction must, however, be made between these effects and the crude and gaudy.

To name the leading color of the season is not a difficult task, as green is by all odds the favorite, but to go one step farther and particularize as to the special shade of green that will be most worn is a hazard which no wise prophet should risk. On the other hand, to discriminate against any shade of green would be equally unwise.

All shades of green are more or less prominent in the new fall goods, accordingly as they are practical or becoming. The French color cards presaged the popularity of green by including in the list of fall colors four distinct lines of green, besides a number of single shades. One of the leading French cards shows alone thirty shades of green, so there need be no monotony even though fashion be confined closely to the one color.

Strong blues are a prominent feature, and especially are they fashionable in combination with green. Shades of purple are also considered very effective when serving the same purpose.

Red is more fashionable than it has been for a number of seasons. The rich wine shades are particularly strong. These, with a few red shades that have a yellowish cast, are given preference over any of the magenta tones.

In pinks bright tones are deemed especially good. Geranium pink is the name. They may be distinguished from the one-time popular cerise by the absence of the bluish cast.

Silver gray was throughout last summer the reigning favorite in Paris. Ultra trade will doubtless be good in grays, but for the general trade not much can be expected in this line until spring.

Brown, which is a staple color for fall, is represented in golden, tobacco and nut shades. All the castor tones are a little brighter than in past seasons, having as they do a dash of yellow. These are strong claimants for favor.

For all the wealth of color shown this season black will be in excellent repute. Combined with white for early wear it will hold its own against all novelties.

An English Automatic.

The United States has been pre-eminent in the development of seamless hosiery knitting machinery, and the advance made in the last few years in the way of automatic knitting machinery in this line has been remarkable. American builders have invaded foreign markets with good success; indeed, during the period of depression which has prevailed in the last six months, the foreign trade has been the most encouraging feature of business to many machine builders who have cultivated this branch.

It was only reasonable to expect that the success attending the American automatics should inspire English inventors, and we note that a new so-called "automatic," the invention of an Englishman, Mr. J. C. Moore, is described in a recent issue of the Knitters' Circular, of England. This journal describes it as differing in detail from any other machine upon the market. While not wholly automatic, it may be so classed, as the only points of personal attention are at the commencement of heels and toes. In this machine a stationary needle cylinder is used, and when making half hose a patent transfer device is employed, which is self-adjusting and positive in action. This device consists

of two rings, one containing the points on which the rib top is placed, and an outer ring, a portion of which is cut into tricks, which fit on to those sinkers held at their outward position, thus insuring the transferer being placed in correct position. The transfer cup proper is then lowered, the points descend, passing the loop on to every needle, the whole operation being the work of a few seconds.

Circular knitting is done in the usual way by the revolving of a cam cylinder. The knitting cams, however, are of the ordinary kind, and consist of one knocking-over and a double action upthrow, which simply control the rise and fall of those needles in knitting position. The needles are worked by jacks, the projections of which ride in a cam way, as on the ordinary English system of circular latch needle machines. An important feature noted by the introducer is, that by these means it becomes impossible to either wear, damage or break the needle butts, and consequent damage to cylinder, etc., beside saving needles.

The driving arrangement is from a single belt and is frictional. A special chain stops the machine at the required course, which enables the circular motion to be changed to a reciprocating one by the movement of the handle, which then brings a second cam shaft into operation, working a quadrant mechanism which reverses the driving for the making of heels or toes, as the case may be. When these are finished the machine automatically changes the clutch arrangement, and circular motion again takes place. In the making of heels and toes the needles are taken in and out of knitting action by a special arrangement peculiar to this machine. Each needle is supported in a jack, the motion being given to this jack, and not to the needle direct. The jack can be in such a position as to be acted upon by the ordinary knitting cams, or depressed out of the way, and so allow them to pass and leave the needle inactive. When changing from circular to reciprocating motion, the action which controls this movement also brings into action a cam that presses upon those needles not having been required in making the heel, and takes them out of action of the knitting cams. This special cam for placing the needles out and in action individually is in a lower part of the cylinder, distinct from the knitting cams proper. The action to individual needles to first take out of action and then return is given by depressing levers, cut in steps, which by being racked in either direction by a screw and notch wheel determines the needles in or out of working position. This change takes place while the cams are at the opposite segment of machine.

When making hose the slackening and stiffening is effected by the raising or lowering of the needle cylinder, the movement being controlled from the stopping or measuring chain. A splicing thread is added, when required, by a special twisting mechanism, and is cut off again by a trapper. Each thread is governed by a distinct and separate tension. Sinkers hold down the loops as formed, and so dispense with weights. The machine runs at a speed of 200 courses per minute.

Designing in Hosiery Manufacture.

Owing to delay in the foreign mail, the manuscript for this month's instalment of this series did not reach us in time for publication. It will be continued in the December number.

—Stockings made from chemically impregnated natural wool, for sufferers from perspiring feet, is the latest production of the Chemnitz hosiery trade.

—New claims are being made in England, for the shaping of circular hose by stiffening, it being set forth as giving greater warmth to the ankle, and so allowing the wearing of shoes, which by leaving the ankle unprotected is deemed by some of the medical faculty injurious.

POWER DEPARTMENT.

O. R. YOUNG, M. E., Editor.

Practical Theory of Steam Making from Shovel to Stop Valve.

Abstract of a paper read before the N. E. Cotton Manufacturers' meeting, by Winturop Thayer, of Boston.

All fuel requires application of heat to be ignited, its quickness of combustion depending on the amount of heat applied to it. Consequently, carrying this reasoning to extremes, we have under great heat, and proper conditions, a total ignition of all the combustibles in fuel, *theoretically*. Why not practically? Because in this case we do not give the furnace time enough to digest its fuel.

In commercial practice we cannot do so, as the money invested in the plant demands that large amounts of fuel be burnt per square foot of grate. We can get air enough for combustion, too much, in fact, but we want time to properly mix the gases and air so that each atom of gas will find its atom of oxygen under heat. We also want time to apply intense heat thoroughly. This period of time must then be allowed before the draft sweeps the gases away from the furnace, and it demands that the fuel must be surrounded and subjected to the most intense heat possible before leaving the furnace, or coming in contact with any cool surfaces of a boiler or furnace water leg.

And as this desirable quick combustion cannot take place instantly, like burning gunpowder, and as good ordinary draft travels 30 feet a second, it demands that the furnace be a separate adjunct to the boiler and of such length as will give time for the complete ignition and combustion of the fuel before being swept away by the draft, to be chilled by the cool absorbing surfaces of the boiler.

Users of internally fired boilers recognize this fact and resort to the expedients of furnace fire brick arches and linings. The Pennsylvania Railroad uses in its locomotive furnaces large fire brick slabs, for the reasons previously stated. This road is a good criterion, as each locomotive is allowed a certain amount of coal for its specified run, and the engineer and fireman get a percentage of the saving from that allowance, which practice should secure economical results.

What would the furnaces in our houses amount to if they were not lined with fire brick tile? They would be like the old fashioned country depot cast iron stove, the fire being blazing hot for a short while, and then quickly dying out along the outside edge, showing black by incomplete combustion.

Keep the furnace at an intense heat if you want to get good results, and keep it away from all cool surfaces until the combustion is completed. The old fashioned well-posted engineers all knew and recognized it, expressing it in the statement that the temperature of the waste gases entering the chimney must be from 550° to 600° to get good results. They were right, but looking through the wrong end of the telescope to get at the object point, viz., high furnace temperature. Keep that as high as you can, and it brings us to the second part of the subject, which is to have a so-called boiler of such capabilities that with this high furnace temperature we shall reduce the *flue* temperature of escaping gases to a minimum. This is a long distance below that before-mentioned 600°, commercially, too, that is, when the boiler is developing its rated power.

The boiler has but the action of a sponge to soak up and absorb the heat fed to it. It should swallow all the heat that the furnace has cooked for it at 2500 degrees, and not allow over 425 degrees F. to escape in the flue when steaming at 100 lbs. pressure. If this flue temperature is exceeded, something is wrong. It may be that the flames are smothered, as it is well known that a flame will be smothered after entering a 3-inch tube the length of eight inches, and it may reignite in the flue after leaving the boiler, where there is more area.

As the more perfect is the combustion, so is there a less amount of soot. Every steam plant should have a temperature telltale in the flue, and have it where it can be readily seen and tabulated every half hour. That is the waste end that needs watching to pay dividends. Watch what a tale it tells after the boiler is cleaned, and you will see that the temperatures of waste heat have dropped, but if you have a boiler that has horizontal surfaces to collect soot and ashes, so much the faster will you see the telltale thermometer in the flue rise steadily, showing how the accumulating soot and ashes allow the heat to pass off unabsorbed and wasted. This temperature sometimes rises 100 degrees in six hours from this cause.

Give us then as near a vertical position as possible for the boiler heating surfaces where the soot and ashes will least lodge and accumulate, and these surfaces should be easily seen by peep holes or easily opened doors for casual inspection any moment by the chief engineer or superintendent on their periodical walks each day.

As the heat side of the boiler surface is, so should the water side be, and the same conditions apply to both, as soot prevents the heat being used and absorbed, so does scale on the inside of the boiler act the same way, but in addition it endangers the life of the boilers.

Scale in the boiler is the nightmare to the owner and a mare's nest to the coal dealer and the boiler repairer. Have your boiler heating surfaces so arranged that scale will the least lodge and accumulate thereon. But if the scale does form, have a boiler so built that all scale, hard or soft, can be easy of access to remove, and the boiler be easily and readily seen for inspection in each and every detailed part. Also if this scale cracks off, do not have such a boiler that it accumulates on another place. Any accumulation of this detached scale should be with the dirt and mud taken away from the action of the furnace heat.

If we wish the steam maker to last and be a commercial success, we must remove heavy joints, riveting and bare tube ends from the direct action of the furnace fires. Thinness of metal is always desired for transferring furnace heat quickly to the water, also because it lasts much longer than thick metal, on the same principle of the water absorbing the heat quickly from the thin metal, while the thick metal may get overheated and burn on the fire side, while the water side of the same plate will be all right. The lasting value of this thin surface being demonstrated by the old experiment of taking a dipper of water and sticking a stamp on the outside bottom (care being taken to remove any grease therefrom) and then boiling the water in the dipper without scorching the stamp, showing how little wearing effect there can possibly be on thin surfaces by heat.

None of us want boiler pressures cut down, compelling the abandonment of either engines or boilers, or else increasing the fuel bill 25 per cent. or more. There is no need of it.

Having used the heat on the boiler as far as possible, there is still heat left. Use it first on the steam to secure its quality of dryness that will give the best efficiencies, also if possible to superheat the steam with this same waste heat. The obvious advantages of carrying steam long distances without

condensation, as well as reducing cylinder condensation, demands that we should secure such superheat in our boiler. See to what extremes and expense engine cylinders are jacketed to secure same results. But care must be taken that the superheating surfaces be so properly proportioned that when the boiler is forced, the amount of superheating will be less. If otherwise, there will be deterioration or destruction of these boiler superheating surfaces.

Of course the waste heat in the flue must be as hot or hotter than the steam it has been superheating. To extract this heat by a so-called economizer or system of water pipes is most desirable, the amount of heat extracted depending on both the number of pipes and the amount of water passing through them. This waste heat is used to warm up the water for different purposes, such as feed to the boiler, or for use in the dye house or bleachery, or even for heating a mill, it having been adopted in a large, progressive New England mill.

Can we go any further? Yes, but depending upon how much our saving friend, Economizer, has not absorbed. By a further system of pipes in the flue a further absorption of the heat may be obtained. The pipes referred to are for air, and the air is for the supply under the grates. This system of supplying hot air to the ash pit, instead of cold air (which of course takes heat from the fire when passing through it), is not new as a theory or an experiment, but it is new in practice applied to coal firing, the first practice on a large scale being on the American Line ship, New York.

The hot blast is in use in the iron and steel works, and is of almost universal use on the Cuba plantations, when wet crushed sugar cane is used for fuel. Cold air blast necessitates the use of coal with it, and the hot blast does not, the difference between the hot and cold blast being startling. While the cold blast showed a red or orange colored flame, the hot blast showed the dazzling white flame of perfected combustion. This system of hot air applied under the grate of furnaces should be as valuable as for the other mentioned purposes.

We have so far reduced the tempera ture in the chimney that we may lack sufficient draft, which forces us to what the writer believes the best system of air supply, viz., forced draft, not suction or induced draft, the latter being only of use where the flues and chimney are too small and of poor arrangement, and where forced draft would be choked, and a gas explosion in the furnace or flue liable to happen. Forced draft used correctly and with sufficiently large flues and chimney will prove a money-saver every time, because it will allow the use of a cheap grade of coal that packs down on the grates like sand, as the blower will force the air through it and make combustion possible, and so prevent the roasted gases from passing off unconsumed.

The blast box mouth piece must be wide and large so there will be no blow pipe effect on a single part of the furnace. The use of the blower has been abused by applying it to decrepit, overstrained plants, to force them to do more than they were able. The writer's plan is to start by using the blower system when everything else is favorable, and has effected a saving of over 20 per cent. month after month by the use of this system combined with cheap fuel.

The additional statements in favor of this blower system are simple. First, forced draft is counteracting any leakages of cold air through flaws in boiler setting that are usually sucked in, cooling the boiler and causing a loss. Second, all the heating or absorbing surfaces are made efficient and brought into use. To illustrate, if a soft string is pulled through a tube it will take the shortest way, following the end of the string being pulled, just the same as natural or suction draft will draw the heat or gases. Now try to push this

same string through the tube and it will curl and gather till it fills the tube, just as a forced draft would force the heat and gases to spread over the whole surface of the tube.

Taking a horizontal tubular boiler as an additional illustration, we find by thermometer that the temperature in the upper tubes under natural draft is much hotter than in the lower row, as the draft will draw the gases to the chimney through the upper tubes, or the shortest way, the same as drawing the string through the tube. Fasten a piece of ordinary paper in the front end of a tube in the lower row of the same boiler, and after two days' run you will find the paper intact and discolored, but not even charred, proving this theory by practice.

Now force the gases and heat and you will find a startling difference, and that all the absorbing or heating surfaces are permeated throughout in every part with this heat forced upon them, setting all the surfaces at work. The draft will also be uniform and independent of atmospheric changes. Forced draft is also of advantage in an emergency, as in case of a fire, to secure steam quickly.

Chalk Talks.—XII.

TO FIND THE TENSILE STRENGTH OF IRON BOILER PLATE.

The large number of accidents occurring from weak or poor boiler plate in years gone by led the government to to establish a certain rule for testing the plates used in the construction of marine boilers, which is as follows:

1. Every iron or steel plate intended for the construction of boilers to be used on steam vessels shall be stamped by the manufacturer in the following manner: At the diagonal corners, at a distance of about four inches from the edges, and at or near the centre of the plate, with the name of the manufacturer, the place where manufactured, and the number of pounds tensile strength it will bear to the sectional square inch.

2. Whenever inspectors shall find a plate of iron or steel with stamps differing as to the tensile strength of the material, they shall rate the tensile strength of the same in accordance with the lowest stamp found thereon.

3. To ascertain the tensile strength and other qualities of iron plate, there shall be taken from each sheet to be used in shell or other parts of boiler which are subject to tensile strain, a test piece ten inches in length, two inches in width, cut out in the centre (in the manner indicated in Fig. 1, on plate XII) so that all sample pieces of five-sixteenths (5-16) inch thick and under shall be one inch wide at reduced section; plate over five-sixteenths (5-16) inch thick shall be reduced in width at centre to an aggregate area approximating four-tenths (4-10) of one square inch, but such reduced area shall in no case exceed forty-five, nor be less than thirty-five one hundredths of an inch, and the force at which the piece can be parted in the direction of the fibre or grain represented in pounds avoirdupois in proportion to the ratio of its area shall be deemed the tensile strength per square inch of the plate from which the sample was taken.

After the coupon has been cut to proper width it should be carefully measured to ascertain its width and thickness at the smallest part, *i. e.*, that part intended for breaking.

It is next put on a testing machine and pulled apart, as shown in Fig. 2. By noting the strain at which the coupon parted, the tensile strength per square inch is easily computed by the following rule:

Rule. Multiply the width of sample in hundredths of an inch at point of fracture (before breaking) by the thickness in hundredths of an inch at that point, which will give the area of the cross section iron at that point in hundredths of an inch. Divide the number of pounds strain at which the coupon parted by the area of the material before breaking, and the quotient will be the tensile strength per square inch of material in pounds.

Fig. 1

Fig. 2

Example.

10" = length of coupon fortesting

½" (.50) = Thickness of plate at narrowest point before breaking

½" (.50) = Width of plate at narrowest point before breaking

15000 lbs = breaking strain at point of fracture

Tensile strength = 15000 ÷ (.50 X .50)

.50" Thickness of plate
.50" Width of plate
.2500 = Area of plate at narrowest point

.2500) 15000.0000 Breaking strain
60,000 = Tensile Strength in lbs per square inch

Lords Magazine

Care of Machinery.

The "Starchroom" prints the following commonsense advice regarding the laundry engineer:

No part of the work in a steam laundry demands more care and consideration by the proprietor than the care and keeping of engine, boiler and machinery, and it very often happens that no part of the work receives less of his attention. Various causes contribute to bring about this state of affairs, such as carelessness, thoughtlessness, mistaken ideas of economy in running the plant, etc., but whatever the cause may be, the manufacturer who sold and fitted up the plant is sure to get a full share of the blame for the rapid depreciation of the machinery and the difficulty experienced in getting out good work with it, although bad management or misplaced confidence in the foreman or engineer is accountable for all the damage done.

That leak in the boiler, that knock in the engine, that shaky shaft, that toothless cogwheel; the slipping belts; those wide seams and loose catches on washer cylinder; that oscillating extractor, to approach which, when running, gives one the same sensation that a shock from a galvanic battery does; those dry-room doors hanging this way and that way, and any way but the right way, letting out the heat and keeping in the moisture; those locked pinions on the collar machine, grinding out anything but heavenly music; that jump of the bosom board, and those rags round the end of the roll giving it the appearance of a friend of McGinty's returning from O'Hooligan's ball; that scratched roll on the body ironer; those leaks and drippings from the mangle, and covers pulled to one side, all go to show that "miss" management has been running the place for some time.

If your boiler has a capacity of 20 horse power and you are forcing it to do the work of 30 horse power, the consequence will be early decay, the furnace plates will not stand that strain forever; and the tubes will soon begin to show signs of burning out. Then begins your trouble. A mechanic has to be called in frequently, and after the mechanic comes his bill, the fuel account is increased inordinately and the profits decrease proportionately.

The steam laundry is a very profitable business, but even large profits can be melted away and disappear in escaping steam, wasted energy and cost of repairing, through overworking or careless handling of a steam plant. In the large, fully equipped laundries where the engineer has nothing to do but attend to the engine, boiler and machinery, sometimes a helper being allowed in doing that work, everything is kept clean, trim, neat and in first-class order.

Not a pound of steam goes to waste; not a pound of coal consumed unnecessarily; everything is run on scientific principles, which is the only sure foundation on which to build up and run a steam laundry successfully, and there are many moderate-sized laundries and some very small establishments where these first principles of economy are carried out equally well; but there are laundries, and their number is legion, where the engineer is expected to attend to the engine, boiler and machinery, do the washing, make the soap, bleach and blue, mind the store and do many other things whether in his line or out of it, keep everything clean and in good working order, for which purpose he is provided with a 75 cent monkey wrench, a 25 cent hammer, a 10 cent cold chisel, a 5 cent belt punch, an oil can and a broom.

There are men who can accomplish all this, but, as a rule, the burden is too great for human muscle and memory. One thing or another is slurred over or missed altogether; the boiler, for instance, is not cleaned out as often as it should be; it becomes scaly or the mud and sediment settle in the corners among the stay bolts or between the tubes; it takes 20 per cent. more coal

to keep up steam than it should do, and the life of the boiler is shortened by one-half. Leaks are numerous. Here it is a valve leaking; there a union is blowing out steam that cost money to produce; the fittings on the boiler, the injector, the valves, all show evidence of neglect—coated over with dirt and lime until the metal is hardly distinguishable.

The engine which ran so smoothly when the laundry started up, now "knocks" all the time; the engineer had not time to fix it when it first worked loose, and now he cannot, either because it is beyond his skill or he has not the tools to do it with. It does not pay to overwork your boiler or your engineer.

Then, again, it sometimes happens that the engineer does not take the interest in his work that he should do; he is one of those fellows that take chances. The boiler burned, the coal consumed, the steam wasted, cost him nothing. If he has an hour to spare he fails to take advantage of it. Perched on a box he reads or dozes away the time that would enable him to keep everything bright and clean were he to make use of it. And there is the man who never takes a rest; there is not a screw in the place but he has unscrewed; not a bolt he has not undone. Every machine, from the engine to the shaper, he has taken to pieces and put together again. He is never at a loss to find something to cobble. He cannot let well alone, and too often makes bad worse.

He who findeth a good engineer findeth riches.

He who findeth a bad engineer, and keeps him, loses money.—*Proverbs "By George."*

Accidents will happen in the best regulated laundries; a screw works loose; it is out of sight, perhaps, and unnoticed until a smash occurs. The broken parts are taken at once to the machine shop and welded, riveted or tied together, in some way to get the use of the machine, and too often allowed to remain in that condition, while if sent to the manufacturer the piece could be duplicated and the machine made as perfect as when new.

Laundry machinery to do good work requires careful adjustment. A very slight flaw, imperceptible almost, in a pinion, a shaft, a bolt or a slot, will spoil the action of the machine and prevent it doing the work for which it was designed.

The laundryman who works with old or patched up machinery when a new machine can be had, or a broken section replaced at the moderate expense and easy terms which our machinery manufacturers are ever ready to quote, is a badly mistaken economist.

Did you ever see a skilled mechanic do fine work without a good set of tools? Did you ever see an intelligent mechanic that did not carefully attend to his tools and keep them in the best possible condition? Did you ever see a laundry where good work was turned out on old, broken down, lame machinery? Did you ever see a laundry proprietor who gave his engineer time to attend to the machinery, oil regularly, adjust the belts occasionally, clean up at stated intervals and keep everything tight and bright? If you did you have viewed a man who understood how to run a steam laundry successfully.

"Verily, verily, I say unto you," emulate him.

EXPERT.

Hints for Steam Users.

When the cost of the pretroleum to evaporate a given amount of water does not exceed that of the coal sufficient to produce the same effect, by more than twenty-five per centum, there is economy in using oil.

***

To harden plaster of paris add five (5) or ten (10) per centum of hydraulic cement to the plaster before wetting. Five (5) per centum of finely ground sulphate of potassium will give even a greater degree of hardness.

COLORS AND DYEING.

Conducted by CONYERS B. FINCKEL,

Professor of Chemistry and Dyeing at the Philadelphia Textile School, in whose Dye-house the tests are made.

Dye Receipts for November, 1896.

A Sample Color Sheet is issued each month by the TEXTILE WORLD, showing tests made by Conyers B. Finckel, Professor of Chemistry and Dyeing, in the Philadelphia Textile School, according to the recipes given in the TEXTILE WORLD. We show the latest colors and methods from month to month, and other tests of interest to the dyer. The extra cost of the Dyed Sample Sheets is $1.00 per year.

No. 81.

Blue Shade of Green on All Wool Cloth.

Dyed with Alizarin Green S W (paste); Wm. Pickhardt & Kuttroff, 128 Duane St., N. Y. Dyed on a mordant of chrome and tartar.

(For 100 lbs. of scoured woolen pieces.)

Mordant as follows:

3% Chrome (potassium bichromate).
1½% Tartar (potassium bitartrate).

Enter the cloth (previously wet out) at 160° F., raise the temperature of the bath to the boiling point in 30 minutes, and continue boiling for one hour. Wash and dye as follows:

10% Alizarin Green S W (paste).

Enter the cloth cold; run cold for 20 minutes, then raise the temperature of the dye bath to the boiling point in one hour, and continue boiling for 40 minutes. Wash and dry.

This dyestuff comes in the form of a reddish brown paste, which mixed with cold water has a reddish brown color. Dyed on a mordant of chromium the shade produced is a green, with a decidedly blue cast. If the operations of dyeing have been properly carried out, the bath should be exhausted.

The amount of water used in dyeing this sample, both in the mordanting and in the dye bath, was about 100 times the weight of the cloth.

This dye paste is in a very smooth and liquid condition, and mixes well and easily with water; owing to this property there is very little danger of uneven dyeing.

No. 82.

Green on All Wool Cloth.

Dyed with Alizarin Green S W (paste), Alizarin Yellow A W (powd.); Wm. Pickhardt & Kuttroff, 128 Duane St., N. Y. Dyed on a mordant of chrome and tartar.

(For 100 lbs. of scoured woolen pieces.)

Mordant as follows:

3% Chrome (potassium bichromate).
1½% Tartar (potassium bitartrate).

Enter the cloth (previously wet out) at 160° F., raise the temperature of the bath to the boiling point in 30 minutes and continue boiling for one hour. Wash and dye as follows:

10% Alizarin Green S W (paste).
1% Alizarin Yellow A W (powd.).

Enter the cloth cold; run cold for 20 minutes, then raise the temperature of the dye bath to the boiling point in one hour; continue boiling for 40 minutes. Wash and dry.

This green dyestuff is the same as the one used in the preceding sample; the yellow comes in the form of a bright orange yellow powder. These mix together very well, but to avoid any risk of uneven dyeing, the yellow should first be stirred to a paste, and then entered into the dye bath through a sieve. This is to keep any lumps from getting into the dye bath. The solution of the two dyestuffs in combination is brown, being less red than the solution of the green alone. The dye bath is exhausted, as should be the case in nearly all the Alizarin dyestuffs.

The shade produced is a very good green, and also very bright and pure

in tone. We are informed that the Alizarin Green S W is strongly recommended to be used with the Alizarin Yellow A W. By varying the proportions a large range of green shades can be produced.

The amount of water used in dyeing this sample, both in the mordanting and in the dye bath, was about 100 times the weight of the cloth.

No. 83.

Bluish Shade of Brown on Cotton Cloth.

Dyed with Diamine Catechine B; W. J. Matheson & Co., Ltd., 178 Front St., New York.

(For 100 lbs. cotton pieces.)

Dye bath is made up as follows:

4% Diamine Catechine B,
20% Glauber's Salt (calcined).

Enter the cloth (previously wet out) at 160° F., raise the temperature of the dye bath to the boiling point, and continue boiling for one hour. Wash and dry.

This dyestuff comes in the form of a dull greyish black powder, and is quite soluble in boiling water with a dark and dull brown solution. The dye bath is not exhausted, and future lots will require less dyestuff to produce the same shade as shown here. The dyestuff can be applied as given in the receipt here, or it can be dyed with the addition of Glauber's salt and soda. The shade is made faster if the dyed cotton is afterward treated with Bluestone (copper sulphate).

The shade produced is a blue shade of brown, and stands between Diamine Brown B and Diamine Brown V. This color is recommended for use in the dyeing of mixed goods, as it dyes the cotton darker than the wool.

The amount of water used in dyeing this sample was about 25 times the weight of the cloth; the smaller the amount of water that is used in the dye bath the heavier will be the shade for the same amount of dyestuff.

No. 84.

Medium Brown on Cotton Cloth.

Dyed with Diamine Catechine G; Wm. J. Matheson & Co., Ltd., 178 Front St., New York.

(For 100 lbs. of cotton pieces.)

Dye bath is made up as follows:

4% Diamine Catechine G,
20% Glauber's Salt (calcined).

Enter the cloth (previously wet out) at 160° F., raise the temperature of the dye bath to the boiling point, and continue boiling for one hour. Wash and dry.

This dyestuff comes in the form of a dull reddish brown powder, and is fairly soluble in water, although less soluble than Diamine Catechine B. The solution has a reddish brown color, quite dark, but less dull than the Diamine Catechine B. The dye bath is not exhausted, and future lots will require less dyestuff to produce the same shade as shown here. The dyestuff can also be applied by using Glauber's salt and soda in the dye bath, and the shade produced is made faster by subsequent treatment with Bluestone (copper sulphate).

The shade produced is a very good and pure shade of brown, and closely resembles the shade produced by the use of cutch. It has the advantage over cutch of not leaving the yarn or cotton harsh. The G brand dyes a yellow shade of brown, being yellower than Diamine Brown Mor. B, and deeper and yellower than cotton brown N. This dyestuff is also recommended for the dyeing of mixed goods, as it dyes the cotton darker than the wool.

The amount of water used in dyeing this sample was about 25 times the weight of the cotton. It is necessary to have the amount of water very small in dyeing with these colors, in order that the dye baths may be concentrated, thus saving in the use of the dyestuff.

No. 85.

Bright Orange on Cotton Cloth.

Dyed with Toluylene Orange R (T. O.

R.); Geisenheimer & Co., 189 Front St., New York.

(For 100 lbs. of cotton pieces.)

Dye bath is made up as follows:

25% Olive Oil Soda Soap,

Dissolve this in the boiling dye bath, and if any scum of lime soap comes to the surface it must be removed, then add

1% Toluylene Orange R,
10% Sodium Phosphate.

Cool the bath to 180° F., then enter the cloth (previously wet out), raise the temperature of the dye bath to the boiling point, and continue boiling for one hour. Wash and dry.

This dyestuff comes in the form of a red orange powder, and dissolves easily in water, giving a reddish orange colored solution. The dye bath is fairly well exhausted, and the shade produced is a very pure and bright shade of orange, possibly a trifle red.

The amount of water used in dyeing this sample was about 25 times the weight of the cloth. This dye bath also requires as small an amount of water as it is practical and possible to use.

NOTE. This dyestuff goes on to the fibre so evenly that it is hardly necessary to reduce the temperature of the dyebath before entering the cloth; the dyeing can be started at the boiling point, and continued at the boil for one hour.

No. 86.

Dark Brown on Cotton Cloth.

Dyed with Diphenyl Brown; J. J. Keller & Co., 104 and 106 Murray St., New York.

(For 100 lbs. of cotton pieces.)

Dye bath is made up as follows:

6% Dyphenyl Brown,
40% Common Salt (sodium chloride).

Enter the cloth (previously wet out) at 160° F., raise the temperature of the dye bath to the boiling point, and continue boiling for one hour. Wash and dry.

This dyestuff comes in the form of a dark brown powder, and dissolves easily in water, giving a dark reddish brown solution. The color boils on to the fibre slowly, so that there is little danger of uneveness. The bath is not exhausted, and future lots will require less dyestuff to produce the same shade. The shade produced is a good dark brown, very bright and pure in tone.

The amount of water used in dyeing this sample was about 25 times the weight of the cloth, this being another of the substantive dyes which require dyeing in as small an amount of water as is possible.

No. 87.

Medium Blue on Cotton Cloth.

Dyed with Naphtazurin B (N. A. Z. B.); Geisenheimer & Co., 189 Front St., New York.

(For 100 lbs. of cotton pieces.)

Dye bath is made up as follows:

1% Olive Oil Soda Soap.

Dissolve this in the boiling dye bath, and if any scum of lime soap comes to the surface it must be removed, then add

1½% Naphtazurin B,
5% Soda (crystalized sodium carbonate).
20% Common Salt (sodium chloride.)

Cool the bath to 180° F., then enter the cloth (previously wet out), raise the temperature of the dye bath to the boiling point and continue boiling for one hour. Wash and dry.

This dyestuff comes in the form of a violet blue powder, and dissolves easily in water, giving a violet blue solution. The dye bath is very well exhausted, and in fact it is better exhausted than most any of the substantive blue dyestuffs. The shade produced is a good clear and bright blue.

The amount of water used in dyeing this sample was about 25 times the weight of the cloth.

NOTE. This dyestuff goes on to the fibre so evenly that it is hardly necessary to reduce the temperature of the dye bath before entering the cloth. The dyeing can be started at the boiling

point, and continued at the boil for one hour.

No. 88.

Dark Blue on Cotton Cloth.

Dyed with Diphenyl Blue-Black; J. J. Keller & Co., 104 and 106 Murray St., New York.

(For 100 lbs. of cotton pieces.)

Dye bath is made up as follows:

5% Diphenyl Blue-Black,
40% Common Salt (sodium chloride).

Enter the cloth (previously wet out) at 160° F., raise the temperature of the dye bath to the boiling point and continue boiling for one hour. Wash and dry.

This dyestuff comes in the form of a dark blue powder, and dissolves easily in water, giving a reddish blue solution. The color boils on to the fibre slowly, so that there is little danger of unevenness. The dye bath is not exhausted, and future lots will require less dyestuff to produce the same shade. The shade produced is a good dark blue, and borders very closely on the shade of a navy blue.

The amount of water used in dyeing this sample was about 25 times the weight of the cloth.

NOTE. Some of these receipts, if dyed practically in the dye house, would be apt to give fuller shades than are here shown; this arises from the fact of the amount of water used being larger than that generally employed. This is because the amount of cloth dyed is so small in comparison with the amount of cloth usually dyed in practice.

Remarks on the Dyed Samples.

Sample 81 shows a good shade of green with a very blue cast. This shade is applicable for any class of worsted or woolen work, as it is very fast to scouring; it is good as a self color, or can be used in combination with any of the alazarin dyes. In a scouring solution the shade is only slightly affected, it becomes a trifle greener. There is no color extracted in the scouring solution, and white yarn plaited with it and scoured in the same solution is not changed, showing that the color is fast to scouring and fulling.

Hydrochloric acid: Cold, makes the fibre blue with a reddish cast, and extracts a pink color; hot, same, with the fibre still redder blue.

Sulphuric acid: Cold, makes the fibre bluer and duller than with hydrochloric acid, with a dull pink color extracted; hot, same, with more color extracted.

Sodium hydrate: Cold, makes the fibre much greener and yellower; hot, the same, fibre almost destroyed.

Ammonium hydrate: Cold, makes the fibre greener and less yellow than with sodium hydrate; hot, the same and a trifle yellower.

Sample 82 shows a good, clear and fairly bright shade of green. This was made by the mixture of the same green as used in the preceeding with alizarin yellow, which seems to be just what is needed to overcome the blue cast of the alizarin green. By varying these proportions, a large variety of good greens can be obtained, ranging from almost a dull yellow to a green shade of blue. The shade here shown, owing to its fastness, is applicable to any class of worsted or woolen work. In a scouring solution the shade is scarcely affected; if anything, it becomes a trifle more of a yellow green. No color is extracted in the scouring solution, and white yarn plaited with it and scoured in the same solution is not stained, showing that the shade possesses great fastness to scouring and fulling.

Hydrochloric acid: Cold, makes the fibre reddish brown and extracts a pink color; hot, the same, only redder.

Sulphuric acid: Cold, makes the fibre a dull reddish brown with a pink color extracted; hot, the same but lighter.

Ammonium hydrate: Cold, very little change, the fibre being a trifle more yellow; hot, the same and still yellower.

BLEACHERS!

Write for pamphlet, just issued, on

BLEACHING

With Peroxide of Sodium.

THE ROESSLER & HASSLACHER CHEMICAL CO.

73 Pine St., - New York.

Sodium hydrate: Cold, makes the fibre a dull yellowish green, and extracts a yellow green color; hot, the same with the fibre almost destroyed.

Sample 83 shows a blue shade of brown, quite full and at the same time bright, being dyed in a single operation. It can be produced with little trouble. The shade produced is fairly fast, and can be used for most any class of work; the shade produced by an after treatment with bluestone is much faster. It is claimed to be very fast to light and also washing; its fastness to acids recommends it for use in cross dyeing. In a scouring solution the shade remains unchanged, except that it becomes just a trifle bluer, and a faint brown color is extracted in the scouring liquor. White yarn plaited with it and scoured in the same solution is slightly stained, showing that while the shade is fast to scouring, it is not entirely fast to fulling. With the shade after treatment with bluestone, it was almost fast to fulling.

Hydrochloric acid: Cold, makes the fibre just a trifle redder; hot, the same and a trifle more red than cold.

Sulphuric acid: Cold and hot, produce very little change, the fibre becoming only very slightly redder.

Ammonium hydrate: Cold, makes the fibre considerably redder and extracts a red color; hot, the same and still redder.

Sodium hydrate: Cold, makes the fibre duller and redder, and also extracts a dull red color; hot, the same and still more pronounced.

Sample 84 shows a good, medium shade of brown, and one which in tone very closely resembles the shades produced with cutch. This shade is as fast to scouring as cutch, but not so fast to fulling. It is dyed in a single operation, and can be used for almost any class of cotton work. The shade produced by an after treatment with bluestone is much faster. It is claimed to be very fast to light and also washing. Its fastness to acids recommends it for use in cross dyeing. This is a product similar to the one described in sample No. 83, but produces better shades of brown, and also faster. In a scouring solution the shade remains practically unchanged, but there is a brown color extracted in the scouring liquor, and white yarn plaited with it and scoured in the same solution is stained, showing that while the shade is quite fast to scouring it is not fast to fulling. The shade produced by an after treatment with bluestone is much faster than the one here shown.

Hydrochloric acid: Cold and hot, have no effect on the fibre.

Sulphuric acid: Cold and hot, have no appreciable effect on the fibre, but the heated solution extracts a faint brown color.

Ammonium hydrate: Cold, makes the fibre redder and extracts a brown color; hot, thes ame and more noticeable.

Sodium hydrate: Cold, makes the fibre duller and redder, and extracts a dull brown solution; hot, the same and a trifle redder.

Sample 85 shows a bright and pure shade of orange, dyed in a single operation. This is one of a series of substantive orange dyestuffs from the same firm, the T. O. G. being yellower, and the T. O. R. R. redder, than the one here shown. They all belong to the same class, and are about the same with reference to fastness. In a scouring solution the shade remains unchanged, and white yarn plaited with it and scoured in the same solution is not stained, showing great fastness to scouring and fulling. This shade, owing to its brilliancy, pure color, tinctorial power and fastness, would be applicable for any class of cotton work.

Hydrochloric acid: Cold, makes the fibre a bright red; hot, the same and a trifle bluer.

Sulphuric acid: Cold and hot, the same as with hydrochloric acid.

Ammonium hydrate: Cold, fibre not changed, but a yellow color extracted; hot, the fibre a trifle lighter and more color extracted.

Sodium hydrate: Cold and hot, no change.

Sample 86 shows a very dark brown dyed in a single operation, and gives a shade closely resembling one produced with a mixture of cutch and logwood. The shade is very fast, and can be used for most any class of cotton work. It is good as a self color, or can be combined with other substantive colors for the production of compound shades. In a scouring solution the shade remains unchanged, but there is a brown color extracted in the scouring bath, and white yarn plaited with it and scoured in the same solution is slightly stained, showing that while the shade is fast to scouring, it is not entirely fast to fulling.

Hydrochloric acid: Cold, makes the fibre a blue shade of red; hot, the shade of red is still bluer.

Sulphuric acid: Cold and hot, the same as with hydrochloric acid.

Ammonium hydrate: Cold, makes the fibre redder and extracts a red color; hot, the same only more pronounced.

Sodium hydrate: Cold and hot, the same as with ammonium hydrate, only the fibre is made duller and a redder color is extracted.

Sample 87 shows a bright and clear shade of blue, and one which would be applicable to any class of cotton work. The shade produced possesses very great fastness and is very easily dyed. In a scouring solution the shade remains unchanged No color is extracted, and white yarn plaited with it and scoured in the same solution is not stained, showing that the shade possesses great fastness to scouring and fulling.

Hydrochloric acid: Cold and hot, has no appreciable effect on the fibre.

Sulphuric acid: Cold and hot, the same as with hydrochloric acid.

Ammonium hydrate: Cold, makes the fibre bluer and extracts a pink color; hot, the same only more pronounced.

Sodium hydrate: Cold and hot the same as with ammonium hydrate.

Sample 88 shows a good dark blue, very much the shade of a navy blue. It is easily dyed, and in a single operation. The shade produced is also quite fast, and is applicable to most any class of cotton work. In a scouring solution the shade remains unchanged, but there is a blue color extracted, and white yarn plaited with it and scoured in the same solution is stained, showing that while the color is fast tc scouring, it is not entirely fast to fulling.

Hydrochloric acid: Cold, makes the fibre redder: hot, the same and still more red.

Sulphuric acid: Cold and hot, the same as with hydrochloric acid.

Ammonium hydrate: Cold, makes the fibre lighter and extracts a heavy bluish-red color; hot, the same with more color extracted.

Sodium hydrate: Cold and hot, the same as with ammonium hydrate.

NOTE. All the samples shown in this sheet are first dyed in skeins, and

after satisfactory results have been obtained by experimenting, the colors are then dyed on pieces of cloth. All of the testing for fastness is done with the shade dyed on the original yarn sample. In making the scouring test, the solution strength is 10 grammes of soap and 2 grammes of alkali (sodium carbonate) to 1 litre of water (1000 c. c.). Into this solution two samples are placed, one of which is plaited with white yarn; they are then allowed to remain in this solution 20 minutes at 130° F., then washed and dried and compared with the original sample. The one plaited with white yarn is rubbed and worked with the fingers, to give as nearly as possible the results obtained in a fulling mill: this of course is not so severe as the fulling mill, but it is the best that can be done without the use of a fuller.

Smaller samples are then cut from the original skeins and tested with hydrochloric acid, sulphuric acid, ammonium hydrate and sodium hydrate. These solutions, with the exception of the ammonium hydrate, are 10 per cent. solutions, and made up as follows: 10 grammes of the concentrated acids and alkali in every 100 c. c. of water. The ammonium hydrate is the stronger water of ammonia of commerce. The samples are allowed to remain in these solutions for about 15 minutes cold, results are taken and then the solutions are heated to the boiling point and results again taken.

CONYERS B. FINCKEL.
Prof. of Chemistry and Dyeing, Philadelphia Textile School.

The Diamine Colors.

The firm of Leopold Cassella & Co., whose agents for the United States are W. J. Matheson & Co., Ltd, have recently issued a most exhaustive treatise on the diamine colors, edited by A. Kertsz, head colorist of their experimental dye house. A translation into English has been supervised by J. J. Hummel, superintendent of the dyeing department, of Yorkshire College, Leeds.

In completeness of design and perfection of execution, the book surpasses anything of the kind that has come to our notice. It is a handsomely bound volume of 250 pages, illustrated by over 40 sample cards, upon which are mounted dyed samples, illustrating the text in its description of the use of the colors under discussion. Besides these plates, the reading pages contain many dyed samples in the margins, so that the student has always under his eye a practical illustration of the subject about which he is reading. There are several hundred dyed samples shown altogether.

The work comprises a description of all the diamine colors put on the market by this firm up to November, 1895, as well as their application in the various branches of the dyeing and printing industries. It is divided into sections, treating as follows: Sec. A, The Application of Diamine Colors on Cotton; B, On Wool; C, On Woolens, Wool and Cotton Mixes; D, Silk Goods with Cotton Warps; E, Silk; F, Linen, Jute, China Grass, etc.

These different subjects are again sub-divided, and each one generally introduced by remarks on the general handling of the goods under discussion with the diamine colors. Then the subject of treating raw stock, piece dyes and printing are taken up and handled particularly. In treating on the application of diamine colors on woolen goods, minute instructions are given in regard to different classes of fabrics. In the cotton section a most valuable collection of samples is given, showing the diamine colors arranged according to their properties and fastness. Cuts are used whenever it is necessary to illustrate any special point, although the use of these colors does not require any special apparatus which is not found in any well regulated dye house.

The work challenges the admiration of the student for its completeness and

thorough execution. It is a mine of information for the dyer, and of greatest possible benefit to him in handling these colors. The diamine colors themselves have thoroughly established their position in the trade. Messrs. Leopold Cassella & Co., state that very probably the number of these colors will be still further increased in future. New demands constantly arise, and by continued chemical research they will aim to add from time to time other colors to this group of dyestuffs. The methods of application are becoming more and more numerous, and improved upon daily, and they intend to issue at intervals, additions and supplements containing such information as the explanation of the group may demand, and practical experience suggest.

The Lamb Company's New Catalogue.

The Lamb Mfg. Co., of Chicopee Falls, Mass., has just issued a new illustrated catalogue, which is by far the most complete book published by the concern in its 30 years' history. Knitters will find it of much interest, covering as it does a line of machinery capable of producing a great variety of goods. The Lamb system, which, when invented really revolutionized the art of knitting, is now almost a distinct branch of the art and has offered great possibilities to the manufacturer. The different styles of Lamb machines are capable of turning out a wide range of light grade work. In addition to the old standard machinery of the company, modernized up to date, some new machines are shown in this catalogue. The Lamb machine, in addition to knitting hosiery, gloves and mittens, is equally capable of being applied to undershirts, combination suits, snow shoes, sweaters, drawers, wristlets, smoking and skating caps, cardigan jackets, petticoats, infants' shirts, leggins, felt boots and felt mittens, among other things. The well known distinguishing principle of the Lamb machine, is its two parallel rows of needles, operating alternately or crossing and uniting, so as to form stitches on both sides of the fabric, by which the all important desideratum of flat or tubular work of any size, single, double or ribbed can be produced and narrowed or widened.

This catalogue should be in the hands of every knit goods man, and it will be sent upon application to the company and mention of the TEXTILE WORLD.

The Lowell Textile School.

The appointment of Christopher P. Brooks as director of the new Lowell Textile School is a happy choice. Mr. Brooks has been closely connected as instructor with institutions of this kind in England, and is well qualified from a professional standpoint for his new position. He expects to be in Lowell about the 12th or 15th of November, and from that time on the plans for organization and equipment will be vigorously pushed forward. We learn that the builders of machinery are cooperating very liberally in the equipment of the school, and it seems probable that it will start with a full equipment of machinery, from the picker room to the cloth finishing, for cotton manufacture, and if there is sufficient room to house it, much woolen and worsted machinery is promised.

Franz & Pope Co. Reorganized.

The reorganization of the Franz & Pope Knitting Machine Co. has been completed, and satisfactory arrangements have been made with the creditors, so that the company again takes possession of its property. The plant has been kept up in every way while it has been in the hands of the trustees, and the many concerns who are using this line of machinery, and other new ones who think well of it, will be pleased to hear of the successful reorganization.

BUYERS' INDEX.

Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Alphabetical Index to Advertisements follows this Classified List.

Architects and Mill Engineers
Berlin Iron Bridge Co, The, East Berlin, Ct.
Ferguson, John W, Patterson, N. J.

Automatic Boiler Feeds.
D'Este & Seeley Co, 29 Haverhill St, Boston

Balling Machine.
Torrance Mfg. Co, 18 Davis St, E. Newark N. J.

Bandings.
See under Yarns.

Banding Machines.
Cole Bros, Pawtucket, R. I.

Baskets.
Barlow, John W, Lawrence, Mass. (Rawhide).

Belting.
Alexander Bros., 410 No. 3d St., Phila., Pa.
Chicago Raw Hide Mfg. Co, bd 193 High St, Boston.
Danforth Belting Co, 221 Chestnut St, Phila, Pa.
Fell, Geo. & Son Bolton, England.
Munson, Chas, Belting Co, Phila, Pa.
Popham, Henry, & Son, East Newark, N. J.
Snyder, M. L, 25 So. Second St, Phila, Pa.
See also Mill Supplies.

Belt Dressing.
Alexander Bros, 410 No. 3d St, Phila, Pa.
Danforth Belting Co, 221 Chestnut St, Philadelphia, Pa.

Bindings
See Tapes and Braids.

Bleaching Materials.
Roessler & Hasslacher Chemical Co, 73 Pine St, New York.

Bobbin Covers.
Hegeman, John, Amsterdam, N. Y.

Bobbins, Spools, Shuttles, Etc.
Woonsocket Shuttle Co, Woonsocket, R. I.

Boiler Compounds.
Imperial Chemical Co, 432 Market St, Phila, Pa.
Lord, G. W, 316 Union St, Phila, Pa.

Boxes, Paper.
Palmer, J. S, 35 Wistar St, Germantown, Pa.

Boxes, Wooden.
Pearson, J. T, Kensington, Pa.

Braids.
See Tapes and Braids.

Braiding Machines.
Thun & Janssen, Reading, Pa.

Burr Pickers.
Atlas Mfg. Co., Newark, N. J.
Sargent's, C. G., Sons, Graniteville, Mass.

Card Clothing.
American Card Clothing Co, Worcester, Mass.
Ashworth, Elijah, Fall River, Mass.
Leigh, Evan A, 35 Mason Building, Boston.

Card Feeds.
Atlas Mfg. Co., Newark, N. J.
Woonsocket Machine & Press Co, Woonsocket, R. I.

Calico Printers' Machinery and Supplies.
New Bedford Copper Co, New Bedford, Mass.
See also Dyeing, Bleaching Machinery, etc.

Carpet Machinery.
Altemus, W. W, & Son, 2816 N. 4th St, Phila, Pa.
Bethune, L. W, 128 Pearl St, N. Y.
Crompton Loom Works, Worcester, Mass.
Curtis & Marble Machine Co, Worcester, Ms.
Furbush M. A, & Son, Machine Co, Phila, Pa.
Howard, Geo. C., 1783 Barker St., Phila., Pa.

Chemicals.
Roessler & Hasslacher Chemical Co, 73 Pine St, New York.

Chemical Stoneware.
American Fire Brick Works, 2637 E. Cumberland St, Philadelphia.

Coal.
Dominion Coal Co, Ltd, 95 Milk St, Boston

Copper Print Rollers.
New Bedford Copper Co, New Bedford, Mass.

Copper Work for Dyers.
Brabender, Chas, Sr. Paterson, N. J.
Oat, Jos. & Sons, 232 Quarry St, Phila, Pa.

Cotton.
Blaisdell, S, Jr, Co, Chicopee, Mass.
Capelle, Herman, cor. Leonard St. and W. Broadway, N. Y.

Cotton Machinery.
Altemus, W. W, & Son, 2816 N. 4th St, Phila, Pa.
Ashworth, Elijah, Fall River, Mass.
Atherton Machine Co, Lowell, Mass.
Bethune, L. W, 128 Pearl St, N. Y.
Cole Bros, Pawtucket, R. I.
Crompton Loom Works, Worcester, Mass.
Curtis & Marble Machine Co, Worcester, Mass.
Draper, Geo, & Sons, Hopedale, Mass.
Easton & Burnham, Pawtucket, R. I.
Fairmount Machine Works, 22d and Wood Sts, Philadelphia.
Howard & Bullough American Machine Co, Pawtucket, R. I.
Kilburn, Lincoln & Co, Fall River, Mass.
Knowles Loom Works, Worcester, Mass.
Leigh, Evan A, 35 Mason Building, Boston.
McKerrow & Bennett, 31 State St, Boston, Mass.
Mason Machine Works, Taunton, Mass.
Providence Machine Co, Providence, R. I.
Saco Water Power Machine Shop, Biddeford, Me.
Thun & Janssen, Reading, Pa.
Whitin Machine Wks, Whitinsville, Mass.
Woonsocket Machine & Press Co, Woonsocket R. I.

Cotton Openers and Lappers.
Atherton Machine Co, Lowell, Mass.
Howard & Bullough American Machine Co, Pawtucket, R. I.
McKerrow & Bennett, 31 State St, Boston, Mass.

Cotton Webbing.
Witter, H. M, & Co, Worcester, Mass.

Cutters for Knit Fabrics.
Kennedy, Thos. (Cutters, etc.,) Cohoes, N. Y.

Damper Regulators.
D'Este & Seeley Co. (Curtis), 29 Haverhill St, Boston, Mass.

Designers.
Fresnel, Gustave, 125 W. 56th St, N. Y.

Dryers.

Philadelphia Textile Machinery Co, Philadelphia, Pa.
Sargent's, C. G., Sons, Graniteville, Mass.
Sturtevant, B. F. Co, 34 Oliver St, Boston, Mass.

Dusters.

See Wool and Waste Dusters.

Dyeing, Bleaching and Finishing.

Greene & Daniels Mfg. Co, Pawtucket, R. I.
Greenwood, R. & Bault, Frankford, Pa.
Home Bleach & Dye Works, Pawtucket and Valley Falls, R. I.
Kensington Dye Works, Kensington, Pa.
Warren, W, Thread Works, Westfield, Mass.

Dyeing, Drying, Bleaching and Finishing Machinery.

Bethune, L. W, 128 Pearl St, New York.
Birch Bros., Somerville, Mass.
Butterworth, H. W, & Sons Co, Phila, Pa.
Delahunty Dyeing Machine Co, 152 N. Front St, Phila. Pa.
Curtis & Marble Machine Co, Worcester, Mass.
Fairmount Machine Works, 22 and Wood Sts, Philadelphia.
Granger Foundry & Machine Co, Providence, R. I.
Howard, Geo. C., 1783 Barker St., Phila., Pa.
Lincoln & Co, 54 Arch St, Hartford, Ct.
Parks & Woolson Machine Co, Springfield, Vt.
Phenix Iron Foundry, Providence, R. I.
Sturtevant, B. F. Co, 34 Oliver St, Boston, Mass. (Drying.)
Woonsocket Machine & Press Co, Woonsocket, R. I.

Dye Sticks,

Haedrich, E. M, 311 1-2 Walnut St, Phila, Pa.

Dyestuffs and Chemicals.

Anchor Color Mfg. Co, 464 Cherry St, New York.
Arnold, Peck & Co, Providence, R. I.
Ashley, T. C, & Co, 145 Milk St, Boston.
Atteaux. F. E, & Co, 172 Purchase St, Boston, Mass.
Beach & Co, Hartford, Ct.
Bischoff, & Co, 87 Park Place, N. Y.
Bosson & Lane, 36 Central Wharf, Boston.
Browning & Bros, 42 N. Front St, Phila, Pa.
Bullock & Crenshaw, 528 Arch St, Phila, Pa.
Corey, S. J, 273 Congress St, Boston.
Farbenfabriken of Elberfeld Co, 77 William St, N. Y.
Geisenheimer & Co, 189 Front St, New York.
Hanna, W. W, 52 N. Front St, Phila, Pa.
Harway Dyewood & Extract Mfg. Co, 184 Front St, N. Y.
Hill, Edward's, Son & Co, 25 Cedar St, N. Y.
Horsfall, Jonathan, 216 Chestnut St, Phila.
Jaeck Bros, J, 62-68 No. 11th St, Brooklyn, N. Y.
Janney, O. S, & Co, Phila. and Boston.
Johnson, Chas. A, & Co, 22 Dey St, N. Y.
Johnson, Wm. G, & Co, Uncasville, Conn.
Kalbfleisch, Franklin H, Co, New York.
Kalle & Co., 77 John St., N. Y.
Keller, John J, & Co, 104-106 Murray St, N. Y.
Klipstein, A, & Co, 122 Pearl St, N. Y.
Koechl, Victor, & Co, 79 Murray St., N. Y.
Matheson, W. J, & Co, 178 Front St, N. Y.
Merrimac Chemical Co, Boston, Mass.
Naumkeag Dye Co, Salem, Mass.
Oakes Mfg. Co, 93 Pearl St, N. Y.
Phillips, Moro Chemical Co, 131 S. 3d St, Phila., Pa.
Pickhardt, Wm, & Kuttroff, 98 Liberty St, New York.
Polhemus, Henry, 66 Maiden Lane, N. Y.
Roessler & Hasslacher Chemical Co, 73 Pine St, New York.
Sharpless Dye Wood Ext. Co, 22 N. Front St, Phila, Pa.
Stamford Mfg. Co, 157 Maiden Lane, N. Y.
Sykes & Street, 85 Water St. N. Y.
Warren Chemical Co, New York.

Dyers and Finishers.

Bay State Dyeing & Finishing Co, North Andover Depot, Mass.
Boston Finishing Works, Williamstown Mass.
Cranston Worsted Mills (yarns), Bristol R. I.
Greenwood, R, & Bault, Frankford, Pa.
Home Bleach & Dye Works, Pawtucket, R. I.
Kensington Dye Works, Kensington, Pa.
Oakdale Dye Works, 913 W. York St, Phila, Pa.
Pawtucket Dyeing & Bleaching Co, Pawtucket, R. I.
Providence Dye Wks, Kensington, Pa.
Warren, W, Thread Works, Westfield, Mass.

Dyers' Clogs.

Wildman, Jos, & Co, 1908 N. Front St, Phila.

Electrotyping and Printing.

J. J. Ryder & Co, 210 Westminster St, Providence, R. I.

Elevators.

Cohoes Foundry & Machine Co, Cohoes, N.Y
Graves Elevator Co, Rochester, N. Y.
Howard, Geo. C., 1783 Barker St., Phila., Pa.
McCalvey Elevator Works, Phila, Pa.
Salem Foundry & Machine Shop, Salem, Mass.

Engineers, Electrical.

Smeallie Bros, Amsterdam, N. Y.

Engineers, Mechanical.

Berlin Iron Bridge Co, E. Berlin, Ct.
Ferguson, John W, Paterson, N. J.
Smeallie Bros, Amsterdam, N. Y.

Engraving on Wood.

Ryder Co, J. J, 210 Westminster St, Providence, R. I.

Express Money Orders and Travelers' Cheques.

American Express Co, offices in every city

Factory Sites.

Dolge, Alfred, Dolgeville, N. Y.
Illinois Central R. R, 506 Central Station Chicago, Ill.

Feed Water Pumps.

Goulds Mfg. Co, Seneca Falls, N. Y.
Phœnix Iron Foundry, Providence, R. I.
Smeallie Bros, Amsterdam, N. Y.

Finishing Machinery.

See Dyeing, Drying, Bleaching and Finishing.

Fire Brick.

American Fire Brick Works, 2637 E. Cumberland St, Philadelphia.

Fluted Rolls.

Cohoes Foundry & Machine Co, Cohoes, N.Y
Thurston, A. G, & Son, Box 528, Fall River, Mass.

Fuel Oil Furnaces.

Rockwell, W. S, & Co, 27 Cortland St, N. Y.

Fulling Mills for Knit Goods.

Hoben, John A, Cohoes, N. Y.
Scott, H. W, Bennington, Vt.

Gas Singeing Machines.

Curtis & Marble Machine Co, Worcester, Ms.

Gear Cutting Machine.

Blaisdell, P, & Co, Worcester, Mass.
Whiton, The D. E, Co, New London, Conn.

Grates.

Argand Grate Bar Co, New York.

Heating.

See Ventilating.

Hosiery Boards.

Pearson, J. T, Kensington, Pa.

Hydro-Extractors.

American Tool & Machine Co, 302 Federal St, Boston.
Bethune, L. W, 128 Pearl St, N. Y.

Index.

Burr Index Co, 336 Asylum St, Hartford, Conn.

Knit Goods Edgings, Trimmings, etc.

Byram, F. A, Germantown, Pa.
Cheney Bros, Silk Goods, 479 Broome St, N. Y.

Fleming & Chapin, 215 Church St, Phila, Pa.
Friedberger, C, Edgings, Germantown, Phila, Pa.
Hepner & Horwitz, Lacings, 30 Howard St, N. Y.
Krout & Fite Mfg. Co, 2632 Mascher St, Phila.

Knit Goods Finishing Machines, Crochet, Etc.

Champion Sewing Machine Co, 1819 N. 5th St, Phila, Pa.
Merrow Machine Co, The, Hartford, Conn.
Nye & Tredick, 606 Arch St, Phila, Pa.
Scott & Williams, 6th and Arch Sts, Phila, Pa.

Knitting Machine Cylinders.

Ashman, Stephen A, 3 Fetter Lane, Phila, Pa.
Paxton & O'Neill, 129 Bread St, Phila, Pa.
Stafford, W, & Co, Little Falls, N. Y.
Stanton & Lewis, 318 Branch St, Phila, Pa.

Knitting Machinery.

American Tool & Machine Co, 302 Federal St, Boston.
Ardrey, S. B, & Sons, Bristol, Pa.
Brinton, H, & Co, 213 Race St, Phila, Pa.
Campbell & Clute, Cohoes, N. Y.
Champion Sewing Machine Co, N. W., cor. American and Diamond Sts, Phila, Pa.
Crane Mfg. Co, Lakeport, N. H.
Excelsior Knitting Machine Co, South Bethlehem, Pa.
Hepworth & Co, Lehigh Ave. and Mascher St, Phila, Pa.
Hodgson & Holt, Laconia, N. H.
Jenckes, E. Mfg. Co, Pawtucket, R. I.
Jones, Lewis, 60 1-2 and Media Sts, Philadelphia, Pa.
Kennedy, Thos (Cutters, etc.), Cohoes, N. Y.
Keystone Automatic Brushing Co, Ltd., Spring City, Pa.
Leighton Machine Co, Manchester, N. H.
Mayo Knitting Machine Co, Franklin, N. H.
Mueller, A, 760 Lexington Ave, Brooklyn, N. Y.
National Automatic Knitter Co, Cherry St, Philadelphia, Pa.
Nye & Tredick, 606 Arch St, Phila, Pa.
Paxton & O'Neill, 129 Bread St, Phila, Pa.
Pepper Mfg. Co, Lakeport, N. H.
Scott & Williams, 6th and Arch Sts, Phila, Pa.
Stafford, W, & Co, Little Falls, N. Y.
Standard Machine Co., 508 Minor St., Philadelphia, Pa.
Taylor, James, 835 Arch St. Phila, Pa.
Union Raveller Co, Troy, N. Y.

Knitting Needles.

Breedon, Wm, & Son, Amsterdam, N. Y.
Corey, Wm, Co, Manchester, N. H.
Ives, Loyal T, New Brunswick, N. J.
Lydall, H, & Foulds, Manchester, Conn.
Star Needle Co, New Britain, Conn.
Treat, Orion, Manchester Green, Conn.
Wardwell Needle Co, Lakeport, N. H.

Laboratory Outfits.

Bullock & Crenshaw, 528 Arch St. Phila, Pa.

Law, Collection and Reporting Bureau.

Columbia Law, Collection and Reporting Bureau, East Haddam, Conn.

Looms.

Bethune, L. W, 128 Pearl St, New York.
Crompton Loom Works, Worcester, Mass.
Draper, Geo. & Sons, Hopedale, Mass.
Fairmount Machine Works, 22d and Wood Sts, Philadelphia.
Furbush, M. A, & Son Co, Phila, Pa.
Gilbert Loom Co, Worcester, Mass.
Howard, Geo. C., 1783 Barker St, Phila., Pa. (For wire.)
Kilburn, Lincoln & Co, Fall River, Mass
Knowles Loom Works, Worcester, Mass.
Mason Machine Works, Taunton, Mass.
Whitin Machine Works, Whitinsville, Ms.
Woonsocket Machine & Press Co, Woonsocket, R. I.

Loom Picker Manufacturers

Crompton Loom Works, Worcester, Mass.
Loom Picker Co, Biddeford, Me.
Novelty Loom Picker Works, 3-7 So. 48th St, Philadelphia, Pa.

Lubricators.

Dixon, Jos, Crucible Co, Jersey City, N. J.

Lumpers.

Gerry, George, & Son, Athol, Mass.

Machinery Dealers.

Schofield, Geo. L, 123 N. Front St. Phila,
Scott, James, 123 No. Front St, Phila, Pa.

Machinery Wipers.

American Silk Mfg. Co, 311 Walnut St, Philadelphia, Pa.

Machinists' Tools.

Blaisdell, P, & Co, Worcester, Mass.
Whiton, The D. E. Co, New London, Conn.

Mails.

Walder, J, Paterson, N. J.

Manufacturing Chemists.

Kalbfleisch, Franklin H, Co, New York.

Measuring and Folding Machines.

Curtis & Marble, Machine Co, Worcester, Ms
Elliott & Hall, 54½ Harmon St, Worcester, Mass.

Mechanical Rubber Goods.

Snyder, M. L, 25 So. Second St, Phila, Pa.

Mill Builders and Engineers.

Berlin Iron Bridge Co, The, East Berlin, Ct.
Ferguson, John W, Paterson, N. J.

Mill Supplies.

American Supply Co, Providence, R. I.
Ashoff, Charles, 191 Berks St, Phila, Pa.
Buckley's, Benj. Son, Gun Mill, Paterson, N. J.
Covel & Osborn, Fall River, Mass.
Hill, Jas, Mfg. Co, Providence, R. I.
Popham, Henry, & Son, East Newark, N. J.
Thurston, A. G, & Son, Fall River, Mass.

Napping Machines.

American Napping Machine Co, Williamstown, Mass.
Ardrey, S. B, & Sons, Bristol, Pa.
Bethune, L. W, 128 Pearl St, N. Y.
Jones, Lewis, 60 1-2 and Media Sts., Philadelphia, Pa.
Keystone Automatic Brushing Co., Ltd., Spring City, Pa.
Parks & Woolson Machine Co, Springfield, Vt.
Woonsocket Napping Machine Co, Woonsocket, R. I.

Office Specialties.

Felt & Tarrant Mfg. Co, Chicago, Ill.

Oilless Bearings.

N. American Metalline Co, 62 W. Ave, and 3rd St, Long Island City, N. Y.

Paints.

American Fire Resisting Paint Co, 17 Broadway, New York.

Pantagraphs for Mill Engraving.

Johnson, C. A, 22 Dey St, New York.

Paper Box Machines.

American Box Machine Co, Amsterdam N. Y.

Paper Tubes for Cone Winders.

Taylor, Chas. F, Providence, R. I.

Patent Solicitors.

Crosby & Gregory, 34 School St Boston, Mass.
Wright, Brown & Quimby, Exchange Bldg, Boston.

Penstocks.

Dalrymple, George, Fair Haven, Vt.

Peroxide of Sodium.

Roessler & Hasslacher Chemical Co., 73 Pine St, New York.

Picker Sticks.

Loom Picker Co., Biddeford, Me.

Picking, Carbonizing and Garnetting.

Garfield Woolen Co, Garfield, N. J.

Pneumatic Conveying.

See Ventilating.

Power Transmitting Machinery.

Alcott, T. C., & Son, Mt. Holly, N. J.
Cresson, Geo. V, 1800 Allegheny Ave, Phila, Pa.
Fairmount Machine Works, 22d and Wood Sts, Philadelphia.
Howard, Geo. C., 1783 Barker St., Phila., Pa.
Kilburn, Lincoln & Co, Fall River, Mass.
Smeallie Bros, Amsterdam, N. Y.

Presses.

Crawford J. J, & Son, Nashua, N. H.
Curtis & Marble Machine Co, Worcester, Ms.
Hodgson & Holt, Laconia, N. H.
Howard, Geo. C., 1783 Barker St., Phila., Pa.
Taylor, James, 835 Arch St, Phila, Pa.
Woonsocket Machine & Press Co, Woonsocket, R. I.

Pressure Regulators for Steam and Water.

D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass.

Pumps.

Goulds Mfg. Co, Seneca Falls, N. Y.
Kalbfleisch, Franklin H, Co, New York.
Smeallie Bros, Amsterdam, N. Y.

Reed and Harness Manufacturers.

American Supply Co, Providence, R. I.
Gowdey, J. A, & Co, Providence, R. I.
Loom Picker Co, Biddeford, Me.
Walder, J, Paterson, N. J.

Ribbons.

Cheney Bros, S. Manchester, Ct.
Friedberger, C, Germantown, Pa.

Roll Coverers.

Barlow, John W (worsted rolls), Lawrence Mass.
Tripp, John, Dutton St, Lowell, Mass.

Roller Skins.

Fell, Geo, & Son, Bolton, England.
Gerrish Wool & Leather Co, Manchester, N. H.
Winslow Brothers, Norwood, Mass.

Roofing, Gravel, Slag and Composition.

Armitage Mfg. Co, Richmond, Va.

Roofing, Paint and Paper.

Armitage Mfg. Co, Richmond, Va.

Roofing, Steel and Tin.

Chattanooga Steel Roofing Co, Chattanooga, Tenn.

Roving Cans and Sheet Metal Work for Mills.

Hill, Jas, Mfg. Co, Providence, R. I.
N. E. Ventilating & Heating Co, 930 Manton Ave. Providence, R. I.

Sewing Machines and Supplies.

Birch Bros., Somerville, Mass.
Champion Sewing Machine Co, N. W. cor. American and Diamond Sts, Phila, Pa.
Frame, Gibbons, 2nd and Diamond Sts, Phila, Pa.
Nye & Tredick, 606 Arch St, Phila, Pa.
Scott & Williams, 6th and Arch Sts, Phila, Pa.

Shearing Machinery.

See Dyeing, Drying, Bleaching and Finishing.

Shell Rolls.

Cohoes Foundry & Mach. Co, Cohoes, N. Y.
Thurston, A. G, & Son, Box 528, Fall River, Mass.

Shoddies.

See Wool Shoddies.

Shuttles.

See Bobbins, Spools, Shuttles, Etc.

Silk Machinery.

Crompton Loom Works, Worcester, Mass.

Singe Plates.

New Bedford Copper Co, New Bedford, Ms.

Sizing.

American Glutrose Co. Penn Mutual Bldg, Phila, Pa.

Skylights (Metal).

Van Noorden & Co, Boston, Mass.

Soaps.

American Soap & Washolene Co, Cohoes, N. Y.
Draper, J. O. & Co, Pawtucket, R. I.
Holbrook Mfg. Co., 466 Washington St., N. Y.
India Alkali Works, Boston.

Spindles.

Buckley, Benj's, Sons, Gun Mill, Paterson, N. J.
Draper, Geo, & Sons, Hopedale, Mass.
Easton & Burnham, Pawtucket, R. I.
Providence Machine Co, Providence, R.I.
Whitin Machine Wks, Whitinsville, Mass.

Spinning Cylinders.

Hill, Jas. Mfg. Co, Providence, R. I.
N. E. Ventilating & Heating Co, 930 Manton Ave, Providence, R. I.

Spinning Frames.

See Cotton Machinery.

Spinning Rings.

Draper, Geo, & Sons, Hopedale, Mass.
Whitinsville Spinning Ring Co, Whitinsville, Mass.

Spinning Tubes.

Buckley, Benj's. Son, Gun Mill, Paterson, N. J.
Providence Machine Co, Providence, R. I.

Steam Boilers.

Sargent, J. Bradford, 8 Oliver St, Boston.

Steam Boiler Insurance.

Hartford Steam Boiler Inspection & Insurance Co, Hartford, Conn.

Steam Damper Regulators.

D'Este & Seeley Co, 29 Haverill St, Boston Mass.

Steam Engines.

Newburgh Ice Machine & Engine Co, Newburgh, N. Y.
Sargent, J. Bradford, 8 Oliver St, Boston, Mass.
Toomey, Frank, 131 N 3d St, Phila, Pa.

Steam Kettles.

Walker & Pratt Mfg. Co, 31-35 Union St. Boston, Mass.

Steam Separators.

D'Este & Seeley Co. (Curtis), 29 Haverill St., Boston.

Steam Specialties.

Argand Grate Bar Co, New York.
Simmons, John & Co, 103-110 Centre St, N. Y.

Steam Traps.

D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass. (return float and expansion).

Steel Castings.

Chester Steel Castings Co, 407 Liberty St. Phila, Pa.

Steel and Iron Roofing.

Chattanooga Steel Roofing Co, Chattanooga, Tenn.

Stop Motion for Looms.

Tucker Stop Motion Co., Hartford, Conn.

Tanks, Tubs and Vats.

Brabender, Chas, sr, Paterson, N. J.
Corcoran, A. J, 11 John St, N. Y.
Cypress Lumber Co, Apalachicola, Fla.
Cypress Tank Co, Bridgeport, Florida.
Hall, Amos H, No. 2nd above Cambria, Phila, Pa.
Oat, Jos, & Sons, 232 Quarry St, Phila, Pa.
Woolford, George, 2240 No. 9th St, Phila, Pa

Tapes and Braids.

Eddy & Street, 11 So. Water S , Providence, R. I.
Fleming & Chapin, 215 Church St, Phila, Pa.
Kenyon, John J, Pawtucket, R. I
Perseverance Mills, 2632-40 Mascher St Phila, Pa.
Witter, H. M. & Co, Worcester, Mass.

Teasels.

Kellogg, Thos. C, Skaneateles, N. Y.
Kellogg, Wm. W, Skaneateles, N. Y.
McLaughlin Bros, Skaneateles Falls, N. Y.

Temperature Regulators.

D'Este & Seeley Co, 29 Haverhill St, Boston.

Tentering Machines.

See Dyeing, Bleaching Machinery, Etc.

Tension Pulleys.

N. E. Ventilating & Heating Co, 930 Manton Ave, Providence, R. I.

Testing Machines.

Howard, Geo. C., 1783 Barker St., Phila., Pa

Traveler's Cheques.

American Express Company.

Turbines.

Burnham Bros, York, Pa.
Christiana Machine Co, Christiana, Pa.
James Leffel & Co, Springfield, Ohio.

Valves.

D'Este & Seeley Co, 29 Haverhill St, Boston, Mass.

Ventilating Apparatus.

Berry, A. Hun, 23 W. 1st St, Boston, Mass.
New England Heating & Ventilating Co, Providence, R. I.
Pancoast Ventilator Co, Phila, Pa.
Philadelphia Textile Machinery Co, Hancock St, above Lehigh Ave, Phila, Pa.
Sargent's, C. G., Sons, Graniteville, Mass.
Sturtevant, B. F. Co, 34 Oliver St, Boston, Mass.
Van Noorden & Co, Harrison Ave, Boston, Mass.

Watchman's Clock.

Hausberg, E. O, 41 Maiden Lane, N. Y.
Nanz & Co, 116 Chambers St, New York.

Water Wheels.

Burnham Bros, York, Pa.
Christiana Machine Co, Christiana, Pa.
Humphrey Machine Co, Keene, N. H.
Leffel, James, & Co, Springfield, O.

Water Wheel Governors.

Cohoes Foundry & Machine Co, Cohoes N. Y.
Leffel, James & Co, Springfield, Ohio.
Lombard Water Wheel Governor Co, 61 Hampshire St, Boston.
Replogle Governor Co, Akron, Ohio.

Winders. (Hosiery.)

Universal Winding Co, 226 Devonshire St, Boston.

Winding. (Silk, Cotton and Worsted).

Brown, Wm. J, 171 Wooster St, New York.

Wool.

Lyon, John H, & Co, 12 Reade St, N. Y.
Webb, Chas. J. & Co, 156 N. Front St. Phila, Pa.

Wool Cleaning Compound.

India Alkali Works, Boston.

Wool Cleaning Process.

International Safety Solvent Co., Providence, R. I.

Wool Combing Machinery.

Crompton Loom Works, Worcester, Mass.

Wool Extracts.

Daly, Jas. E., & Co., 105 River St., Paterson, N. J.
Garfield Woolen Co, Garfield, N. J.
Muhlhauser, F, Co, Cleveland, Ohio.

Wool and Waste Dusters.

Gerry, Geo, & Son, Athol, Mass.
Sargents', C. G., Sons, Graniteville, Mass.
Stillman-Randall Machine Co, Westerly, R. I.

Woolen Machinery.

Altemus, W. W, & Co, 2816 N. 4th St, Phila Pa.
Atlas Mfg. Co., Newark, N. J.
Barker, James, cor. 2d and Somerset Sts., Phila, Pa.
Bethune, L. W, 128 Pearl St, New York.
Blaisdell Feeder Co, 29 Oliver St, Boston, Mass.
Crompton Loom Works, Worcester, Mass.
Curtis & Marble Machine Co, Worcester, Mass
Fairmount Machine Works, 22d and Wood Sts, Philadelphia.
Furbush, M. A. & Son Machine Co, Phila, Pa.
Howard, Geo. C., 1783 Barker St., Phila., Pa.
Knowles Loom Works, Worcester, Mass.
McKerrow & Bennett, 31 State St, Boston, Mass.
Parker, J. B, Machine Co, Clinton, Mass.
Sargent's, C. G., Sons, Graniteville, Mass.
Thun & Janssen, Reading, Pa.
White, John F, 38 River St, Providence, R. I.
Woonsocket Machine & Press Co, Woonsocket, R. I.

Wool, Hair and Noils.

Fowles & Co, 102 Church St, Phila.
Lyon, John H, & Co, 12 Reade St, N. Y.
Muhlhauser, F, Co, Cleveland, Ohio.
Webb, Chas. J, & Co, 156 N. Front St, Phila Pa.

Wool Shoddies.

Becker, Chas. W, Amsterdam, N. Y.
Collings, Taylor & Co, Cleveland, Ohio.
Garfield Woolen Co, Garfield, N. J.
Muhlhauser, F, Co, Cleveland, Ohio.
Riverdale Woolen Co, Riverdale, Northbridge, Mass.

Wool Sorters and Scourers.

Duross, Theodore A, Kensington Ave. and Huntingdon St, Phila.

Wool Washing, Preparing and Drying Machinery.

Sargent's, C. G, Sons, Graniteville, Mass.

Wool Waste.

Hollister Bros, 160 5th Ave, New York.

Yarns, Threads, Etc.

Banding.

Kenyon, John J, Pawtucket, R. I.
Moore, C. & Co, 12 S. 5th St, Phila, Pa.
Warren, W, Thread Works, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.
Tucker & Cook Mfg. Co, Conway, Mass.
White, James F, & Co, N. Y. and Phila, Pa.
Whittier Cotton Mills, Lowell, Mass.

Carpet Yarns.

Fleming & Chapin, 215 Church St, Phila, Pa.

Colored Cotton Yarns.

Eichman & Sternberg, 488 Broadway, N. Y.
Greene & Daniels Mfg. Co, Pawtucket, R. I.
Hadley Co, Holyoke, Mass.
Montgomery, J. R, Co, Windsor Locks, Ct.
Monument Mills, Housatonic, Mass.
Sanford Spinning Co, Fall River, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y.
Tucker & Cook Mfg. Co, Conway, Mass.
Wilmington Mills Mfg. Co, Wilmington, Del.

Cotton Warps and Yarns.

Abegg & Rusch, 92 Grand St, N. Y.
Clark, Wm, Co, Westerly, R. I.
Eddy & Street, 11 So. Water St, Providence, R. I.
Eichman & Sternberg, 488 Broadway, N. Y.
Fleming & Chapin, 215 Church St, Phila, Pa
Germantown Spinning Co, Germantown Pa.
Globe Yarn Mills, Fall River, Mass.
Grant Yarn Co, Fitchburg, Mass.
Greene & Daniels Mfg. Co, Pawtucket, R. I.
Hadley Co, Holyoke, Mass.
Hawes, O. S, & Bro, Fall River, Mass.
Holland & Webb, 487 Broadway, N. Y.
Kerr Thread Co, Fall River, Mass.
King, Alex, & Co, 54 Leonard St, New York City.
Lane, J. H, & Co, N. Y, Boston and Chicago
Mitchell, Jas. E, & Co, Boston and Phila, Pa.

Monument Mills, Housatonic, Mass.
North Athens Cotton Mills, Athens, Tenn.
Orswell Mills, Fitchburg, Mass
Sampson, O. H, & Co, 67 Chauncy St, Boston, Mass.
Mortgomery, J R, Co, Windsor Locks, Ct.
Sanford Spinning Co, Fall River, Mass.
Sawyer, Manning & Co., 86-88 Franklin St.
Skerry, A. T, 47 Leonard St, New York.

Gassed Yarns.

Greene & Daniels Mfg. Co, Pawtucket, R. I.
King, Alex, & Co, 54 Leonard St, New York.

Glazed Yarns.

Blodgett & Orswell, Pawtucket, R. I.
Eichman & Sternberg, 488 Broadway, N. Y.
Fleming & Chapin, 215 Church St, Phila, Pa.
Kenyon, John J, Pawtucket, R. I.
Kerr Thread Co, Fall River, Mass, and 29 Mercer St, N. Y
King, Alex, & Co, 54 Leonard St, New York.
Malcolm Mills Co, Frankford, Pa.
Warren W, Thread Works, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.

Harness Twines.

Hadley Co, 95 Milk St, Boston, Mass.
Kerr Thread Co, Fall River, Mass, and 29 Mercer St, N. Y.
King, Alex, & Co, 54 Leonard St, New York.
Moore, C, & Co, 12 S. 5th St, Phila, Pa.
Warren, W, Thread Works, Lowell, Mass.
Whittier Cotton Mills, Lowell, Mass.

Hosiery and Knitting Yarns.

Campbell, Geo, & Co, Phila, Pa.
Champlain Silk Mills, Whitehall, N. Y.
Clark, Wm. Co, Westerly, R. I.
Clasgens, The J. & H. Co, New Richmond, Ohio.
Croll, Albert Ivins, Boston, Mass.
Eichman & Sternberg, 488 Broadway, N. Y.
Fleming & Chapin, 215 Church St, Phila, Pa.
Germantown Spinning Co, Germantown, Pa.
Globe Yarn Mills, Fall River, Mass.
Greene & Daniels Mfg. Co, Pawtucket, R. I.
Holland & Webb, 487 Broadway, N. Y.
Hyde, E. S, 223 Chestnut St, Phila, Pa.
Kerr Thread Co, Fall River, Mass.
King, Alex, & Co, 54 Leonard St, New York.
Lane, J. H, & Co, New York, Boston and Chicago.
Monument Mills, Housatonic, Mass.
Orswell Mills, Fitchburg, Mass.
Rockwell, E. M, Leominster, Mass.
Sampson, O. H., & Co., 67 Chauncy St., Boston, Mass.
Sanford Spinning Co, Fall River, Mass.
Sawyer, Manning & Co, 86-88 Franklin St, N. Y.
Trenton Worsted Mills, Trenton, N. J.
Warren, W, Thread Works, Lowell, Mass.
Whittier Cotton Mills, Lowell, Mass.

Jute Yarns.

Eichman & Sternberg, 488 Broadway, N. Y
Lane, J. H, & Co, N. Y, Boston and Chicago.
Wilmington Mills Mfg. Co, Wilmington Del.

Mohair Yarns.

Eichman & Sternberg, 488 Broadway, N. Y
Holland & Webb, New York.

Novelty Yarns, Tinsels, Silk Noils, Etc.

Cranston Worsted Mills, Bristol, R. I.
Eichman & Sternberg, 488 Broadway, N. Y.
Holland & Webb, New York.
Malcolm Mills Co, 216 Chestnut St, Phila, Pa.

Ramie.

Holland & Webb, New York.
Sampson, O. H., & Co., 67 Chauncy St., Boston, Mass.

Silk Yarns.

Champlain Silk Mills, Whitehall, N. Y.
Cheney Bros, S. Manchester and Hartford Ct.
Eichman & Sternberg, 488 Broadway, N. Y.
Fleming & Chapin, 215 Church St, Phila, Pa.
Hawes, O. S. & Bro, Fall River, Mass.
Holland & Webb, 487 Broadway, N. Y.
Ryle, Wm, & Co, 54 Howard St, N. Y.
Silk Lour Mfg. Co, Putnam and Mascher Sts, Philadelphia, Pa.

Spun Silk Yarns.

Champlain Silk Mills, Whitehall, N. Y.
Eddy & Street, 11 So. Water St, Providence, R. I.

Woolen and Merino Yarns.

Clasgens, The J. & H. Co, New Richmond, Ohio.
Eddy & Street, 11 So. Water St, Providence, R. I
Hollister Bros, 169 5th Ave, New York.
Hyde, E. S, 223 Chestnut St, Phila, Pa.
King, Alexander & Co, 54 Leonard St, N. Y.
Mitchell, Jas. E. & Co, Boston, Mass, and Phila, Pa.
River Spinning Co, Woonsocket, R. I.
Rockwell, Edward M, Leominster, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.

Worsted Yarns.

Abegg & Rusch, 92 Grand St, N. Y.
Alleghany Worsted Mills, Phila, Pa.
Campbell, Geo, & Co, Phila, Pa.
Cranston Worsted Mills, Bristol, R. I.
Croft, Howland, & Sons, cor. Broadway and Jefferson St, Camden, N. J.
Eddy & Street, 11 So. Water St, Providence, R. I.
Eichman & Sternberg, 488 Broadway, N. Y.
Herbst & Jones, 21st and Naudain Sts, Philadelphia, Pa.
King, Alexander & Co, 54 Leonard St, N. Y.
Sawyer, Manning & Co., 86-88 Franklin St, N. Y.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.
Trenton Worsted Mills, Trenton, N. J.

Alphabetical Index to Advertisements.

	page
Abegg & Rusch.	117
Alexander Bros.,	111
Allegheny Worsted Mills,	120
Altemus, W. W. & Son,	9
American Card Clothing Co,	7
American Express Co.,	110
American Fire Brick Works,	86
American Fire Resisting Paint Co,	126
American Glutrose Co,	84
American Napping Machine Co.,	—
American Silk Mfg. Co,	109
American Soap & Washoline Co.,	—
American Supply Co.,	126
American Tool & Machine Co,	—
Anchor Color Mfg Co,	84
Ardrey, S. B, & Sons,	98
Argand Grate Bar Co,	104
Armitage Manufacturing Co,	130
Arnold, Peck & Co,	84
Ashley, T C, & Co,	86
Ashoff, Chas,	—
Ashman, S. A.,	95
Ashworth, Elijah,	7
Atherton Machine Co.,	6
Atlas Mfg. Co.,	6
Atteaux, F. E., & Co ,	83
Barker, James,	—
Bay State Dyeing & Finishing Co,	123
Beach & Co.,	82
Becker, Chas. W,	—
Berlin Iron Bridge Co.,	Back Cover
Berry, A. Hun,	85
Bethune, L. W,	—
Birch Bros.,	89
Bischoff, C., & Co.,	83
Blaisdell, P., & Co.,	124
Blaisdell, The S. Jr., Co.,	114
Bosson & Lane,	83
Boston Finishing Works,	123
Brabender, Chas., Sr.,	89
Branson Machine Co,	103
Breedon, Wm., & Son,	99
Brinton, H., & Co.,	90
Brophy, T.,	123
Buckley's Benj, Son,	127
Burnham Bros.	107
Burr Patent Index Co.,	129
Butterworth H. W. & Sons Co.,	1
Byram, F. A,	94
Campbell, Geo, & Co,	120
Campbell & Clute,	94
Capelle, Herman,	114
Champion Sewing Machine Co.,	93
Champlain Silk Mills,	—
Cheney Bros,	122
Chester Steel Castings Co.,	126
Christiana Machine Co,	107
Clark, The William. Co,,	118
Clasgens, The J. & H. Co.	116
Cohoes Foundry & Machine Co.,	124
Cole Bros.	117
Collings, Taylor & Co,	—
Corcoran, A. J.,	88
Corey, S. J.,	84
Corey, Wm., Co.,	99
Crane Mfg. Co.,	95
Cranston Worsted Mills,	120
Crawford, J. J. & Son..	—
Croft, Howland, Sons & Co,	120
Croll, Albert Irving,	122
Crompton Loom Works,	8
Crosby & Gregory,	11
Curtis & Marble Machine Co.,	7
Cypress Lumber Co,	87
Cypress Tank Co,	87
Dalrymple, Geo,	—
Daly, James E.,	119
Danforth Belting Co.,	111
Designer,	98
D'Este & Seeley Co.,	108
Dixon, Jos., Crucible Co.,	107

	page.
Dolge, Alfred.	127
Dominion Coal Co, Ltd,	108
Draper, Geo., & Sons,	3
Draper, J. O, & Co,	—
Duckrow, R. A,	—
Duross, Theo. A.,	119
Easton & Burnham Machine Co.,	—
Eddy & Street,	—
Eichman & Sternberg,	116
Elliot & Hall,	130
Excelsior Knitting Machine Co,	92
Fairmount Machine Works,	46
Farbenfabriken of Elberfeld Company,	81
Fell, Geo., & Son,	118
Felt & Tarrant Mfg. Co,	—
Ferguson, John W.,	Back cover
Fitchburg R. R.	130
Fleming & Chapin.	94
Fowles & Co.,	119
Frame, Gibbons,	94
Fresnel, Gustave P,	129
Friedberger, C.	102
Furbush, M. A. & Son Machine Co,	46
Garfield Woolen Co.,	—
Geisenheimer & Co,	Outside Back Cover.
General Electric Co.,	105
Germantown Spinning Co.,	114
Gerrish Wool & Leather Co.,	119
Gerry, Geo. & Son,	—
Gilbert Loom Co.,	8
Globe Yarn Mills,	112
Goulds Mfg. Co,	—
Gowdey, J. A, & Co.	46
Granger Foundry & Machine Co.,	Front Cover.
Grant Yarn Co.,	115
Graves Elevator Co.,	109
Greene & Daniels Mfg. Co.,	116
Greenwood, R., & Bault,	123
Haedrich, E. M,	87
Hadley Co.,	118
Hall, Amos H.,	86
Hausburg, E. O,	109
Hartford Steam Boiler Inspection & Insurance Co.,	106
Harway Dyewood & Extract Co.,	83
Hawes, O. S., & Bro.,	115
Hegeman, John,	—
Hepner & Horwitz,	100
Hepworth & Co.,	95
Herbst & Jones,	117
Hill's, Edward, Son & Co.,	83
Hill, Jas., Mfg. Co.,	—
Hoben, John A,	—
Hodgson & Holt Mfg. Co,	93
Hodson, John M.,	116
Holbrook Mfg. Co.,	126
Holland & Webb,	117
Hollister Bros,	Back Cover.
Home Bleach & Dye Works,	123
Howard, Geo. C.	127-109
Howard & Bullough Am. Machine Co.,	5
Humphrey Machine Co,	—
Hyde, Edward S.,	114
Illinois Central R. R,	130
Imperial Chemical Co.,	107
India Alkali Works,	130
International Safety Solvent Co.	10
Ives, Loyal T.	99
Jaeck, J., Bros.,	81
Janney, O. S., & Co.,	82
Jenckes, E., Mfg. Co.,	97
Johnson, Chas. A., & Co.,	83
Johnson, Wm. G, & Co,	82
Jones, Lewis	95
Kalbfleisch, Franklin H, Co,	Outside Back Cover
Kalle & Co.,	82
Keller, John J., & Co.,	82
Kellogg, Thos. C.	46
Kellogg, Wm. W.	46

	page
Kennedy, Thos,	100
Kenyon, John J.,	—
Kerr Thread Co.,	117
Keystone Automatic Napping Mch. Co,	98
Kilburn, Lincoln & Co.,	119
King, Alex'r & Co.,	115
Klipstein, A. & Co.,	Back Cover
Knowles Loom Works,	6
Koechi, Victor, & Co,	81
Krout & Fite Mfg. Co.,	94
Lane, J. H., & Co.,	115
Leffel, James, & Co,	107
Leigh, Evan Arthur,	9
Leighton Machine Co.,	92
Lincoln & Co.,	89
Lombard Water Wheel Governor Co.,	—
Loom Picker Co., Biddeford,	—
Lord, Geo. W.,	108
Lydall, H., & Foulds,	99
Lyon, John H. & Co.,	—
Malcolm Mills Co.,	118
Mason Machine Wks.,	6
Matheson, & Co., Wm. J.,	81
McCalvey Elevator Works,	109
McKerrow & Bennett,	8
McLaughlin Bros.,	46
Merrimac Chemical Co,	—
Merrow Machine Co.,	96
Mitchell Jas. E., & Co.,	115
Montgomery, J. R., Co.,	118
Monument Mills,	116
Moore, C., & Co.,	119
Mueller, A.,	93
Muhlhauser, The F. Co,	121
Munson, Chas., Belting Co.,	104
Nanz & Co,	111
National Automatic Knitter Co,	12
Naumkeag Dye Co.,	84
New Bedford Copper Co.,	89
Newburgh Ice Machine & Engine Co,	106
New England Ventilating & Heating Co.,	86
North American Metaline Co.,	111
North Athens Cotton Mills,	117
Novelty Loom Picker Works,	8
Nye & Tredick,	90
Oakdale Dye Works,	123
Oakes Mfg. Co.	84
Oat, Joseph, & Sons,	86
Orswell Mills,	116
Palmer, John S.,	100
Pancoast Ventilator Co,	87
Parker, J. B., Machine Co.,	7
Parks & Woolson Machine Co.,	—
Pawtucket Dyeing & Bleaching Co.,	123
Paxton & O'Neill,	90
Pearson, J. T.,	96
Pepper Mfg. Co.,	92
Phenix Iron Foundry,	89
Philadelphia Textile Machinery Co.,	98
Philadelphia Textile School,	100
Pickhardt, Wm, & Kuttroff,	—
Polhemus, Henry,	83
Popham, Henry, & Son,	—
Providence Machine Co.,	7
Quilter, James H,	100

	page.
River Spinning Co,	120
Riverdale Woolen Co,	123
Rockwell, E. M.,	117
Rockwell, W. S, & Co,	129
Roessler & Hasslacher Chemical Co,	69
Ryder, J. J., Co.,	131
Ryle, William, & Co.,	122
Saco Water Power Machine Shop	9
Salem Foundry Machine Shop,	109
Sampson, O. H., & Co.,	115
Sanford Spinning Co.,	112
Sargent's, C. G., Sons,	—
Sargent, J. Bradford,	104
Sawyer, Manning & Co.,	115
Schofield, Geo. L.,	127
Scott, H. W,	—
Scott & Williams	91
Sharpless Dyewood Extract Co.,	82
Sheldon, J. D. & Co.,	111
Silk Lour Mfg. Co,	122
Simmons, John & Co,	9
Skerry, A. T, & Co,	121
Smeallie Bros,	106
Solis, Andrew J. Jr., & Co.,	122
Stafford & Babcock,	96
Stamford Mfg. Co.,	81
Standard Machine Co.,	101
Stanton & Lewis,	99
Star Needle Co.,	99
Stillman-Randall Machine Co.,	127
Sturtevant, B. F. Co.,	Inside Back Cover
Sykes & Street,	81
Taylor, James,	96
Thun & Janssen,	129
Thurston, A. G. & Son,	—
Toomey, Frank,	131
Torrance Mfg. Co,	—
Treat, Orion,	99
Trenton Worsted Mills,	115
Tucker & Cook Mfg. Co.,	117
Tucker Stop Motion Co,	—
Union Raveler Co,	—
Universal Winding Co.,	10
Van Noorden, E, & Co,	Back Cover
Walder, J.,	126
Walker & Pratt Mfg. Co.,	84
Wardwell Needle Co.,	99
Warren, W., Thread Works,	114
Warren Chemical Co,	Outside Back Cover.
Webb, Chas. J. & Co.,	119
White, James F. & Co.,	116
White, John F,	129
Whitin Machine Works,	2
Whitinsville Spinning Ring Co.,	124
Whiton D. E. Machine Co.,	124
Whittier Cotton Mills,	116
Wildman, Joseph, & Co,	86
Williams, J,	131
Wilmington Mills Mfg. Co,	119
Witter, H. M, & Co,	114
Woolford, George,	86
Woonsocket Machine & Press Co,	4
Woonsocket Napping Machine Co,	127
Woonsocket Shuttle Co,	11

VICTOR KOECHL & COMPANY,

Successors to Schulze-Berge & Koechl,

79 MURRAY ST., NEW YORK.

Sole Agents for the **ANILINE COLORS AND ALIZARINES**

Made by FARBWERKE, formerly MEISTER, LUCIUS & BRUENING, HOECHST a/M.

FAST COLORS for Wool, Yarn and Piece-Goods Dyeing, and Calico Printing

Branch Offices: 138 Milk St., BOSTON, 39 N. Front St., PHILADELPHIA, Pa.

STAMFORD M'F'G CO.,

133, 135, 137 FRONT ST., NEW YORK.

MANUFACTURERS OF

DYEWOODS and DYEWOOD EXTRACTS,

LIQUORS AND FLAVINES.

Importers of Chemicals and Dyestuffs.

Extracts of Indigo, Indigo Carmine, Indigotine, Gendarme Blue, Refined and Reduced Indigo, Dressings and Finishings,

Bisulphite of { Soda, Chrome, Iron.

Alizarine Assistant, Sulphoricinate, Soaps.

JAECK BROS.

62-68 North 11th St., Brooklyn, N. Y.

Cutch & Gambier Extracts, Indigo Substitute, Steam Black, Acetate of Chrome, Chlorogen, Sucrosine, Peroxyde of Hydrogen.

All products guaranteed strictly pure.

Cyanoles. Patented.

Superior to Indigo Extract or Patent Blues.

Manufactured by L. CASSELLA & CO.

Sole U. S. and Canada Agents, WM. J. MATHESON & CO., Ltd.,

NEW YORK, BOSTON, PROVIDENCE, PHILA., CHARLOTTE, N. C., MONTREAL, CANADA.

FARBENFABRIKEN OF ELBERFELD COMPANY,

77 WILLIAM ST., NEW YORK.

16 Hamilton St. Boston. 11 North Front St. Phila. 161 Kenzie St. Chicago

Sole Importers of ALIZARINE AND ANILINE COLORS

Manufactured by

FARBENFABRIKEN vormals FRIEDR. BAYER & Co., Elberfeld and Barmen, Germany

Sole agents of the Hudson River Aniline Color Works. ALBANY, N. Y.

SYKES & STREET,

New York. Boston. Philadelphia.

Sole U. S. Agents for

"COEZ"

FRENCH DYEWOOD EXTRACTS.

E-tablished 1834. H. G. JOHNSON, Proprietor.

Wm. G. Johnson Co.

Manufacturers of

DYEWOODS

Logwood Extracts, - - -
Ground and Bolted Camwoods
And other Fancy Woods. -

All Goods Warranted Uniform.

Long Distance Telephone. UNCASVILLE, CONN.

JOHN J. KELLER & CO., 104-106 MURRAY ST., NEW YORK.

Sole Agents for JOHN R. GEIGY & CO., Basle, Switzerland.

Aniline Colors, Dyewood Extracts, Etc.

Cotton Printing Specialties, Fast One Dip Cotton Colors, Fast Wool Colors.

220 Church Street, Philadelphia. } Branch Houses: { 153 Milk Street, Boston.

ESTABLISHED 1863.

KALLE & CO.

Manufacturers of Aniline Colors, BIEBRICH ON RHINE, GERMANY.

77 JOHN STREET, NEW YORK.

PHILADELPHIA, 115 & 117 South Front Street. BOSTON, 463 Atlantic Avenue.

BEACH & COMPANY,

Hartford, Conn., and 372 & 374 Atlantic Ave., Boston, Mass.

Proprietors GROVE WORKS DYEWOOD MILLS.

Agents British Alizarine Co., Brooks, Simpson & Spiller, Anilines, Edward Muckslow's Dyeing Extracts, J. R. G. Cochineal, Etc.

THE SHARPLESS DYE-WOOD EXTRACT CO.,

OFFICES: 648, 650, 651 The Bourse, PHILADELPHIA.
Warehouse: 22 N. Front St., PHILADELPHIA. Works: CHESTER, PA.

—MANUFACTURERS OF—

DYEWOODS AND EXTRACTS.

LOGWOOD.
FUSTIC.
BARK
CUTCH

O. S. JANNEY & CO.

IMPORTERS OF

INDIGO, CUTCH, GAMBIER, SICILY SUMAC, TUMERIC, CHINA CLAY, Etc.

AND DEALERS IN

Dyestuffs, Extracts and Chemicals.

AGENTS FOR

WATSON, WALKER & QUICKFALL, Ltd., Leeds, Eng., - - - - EXT. INDIGO, ARCHIL AND CUDBEAR.
BALTIMORE CHEMICAL CO., - - - - MORDANTS AND COLORS FOR DYERS, CALICO PRINTERS, ETC.
TRELAVER CHINA CLAY AND CHINA STONE WORKS CO., } England, CLAYS FOR POTTERS AND
MID CORNWALL CHINA STONE AND CLAY CO., Ltd., } PAPER MAKERS.
AMERICAN GLUCOSE CO., Buffalo, N. Y., - - - - - - - CORN STARCH.
SCHILL & SEILACHER, Stuttgart, Germany. ANTIMONY SALTS.

No. 70 Kilby St., Boston, Nos. 8 & 10 Letitia St., Phila,

C. BISCHOFF & CO.,

87 and 89 Park Place, New York. Branches, 110 Walnut St., Phila. 104 Broad St., Boston.

Aniline and Alizarine Colors, Dyestuffs, Chemicals,

ANILINE OILS AND SALTS.

LATEST SPECIALTIES.

Cresylblue, OB pat'd.	For Cotton: absolutely fast to Sunlight.	Thio Versatine, BB.	One dip for cotton and mixed goods, wool and cotton silk and cotton.
" BB "		" Brown, BB.	
" RR "		" Yellow, R.	
Cresylviolet "		" Orange, G.	

Naphtazine Blue (Pat.)—a fast acid Navy Blue for Wool.

FAST DIRECT BLUES, Pat'd. for Cotton and Mixed Goods Wool and Cotton, Silk and Cotton.

FAST DIAZOTABLE BLACKS, PAT'D.

BOSSON & LANE,

ANTI-CHLORINE *FOR BLEACHING COTTON. NO ACID. NO SOAP.*

Dyestuffs, Chemicals and Aniline Colors.

36 CENTRAL WHARF, BOSTON, MASS.

J. M. Beckett & Son's Pigment Colors are BRIGHTER and FASTER than any others.

CHAS. A. JOHNSON & CO.,

Dealers in Dyestuffs and Textile Trade Supplies, Sole Agents for the United States

22 Dey St., N. Y. 29 Weybosset St., Providence.

HENRY M. POLHEMUS,

Successor to Gridley & Co.,

BROKER AND MANUFACTURERS' AGENT.

ACIDS, CHEMICALS, DYE STUFFS, ETC.

66 Maiden Lane, New York.

Office and Salesroom, 174 & 176 Purchase St. BOSTON.

F. E. ATTEAUX & CO.

Works, W. First, D & Cypher Sts. SO. BOSTON.

MANUFACTURING CHEMISTS.

Importers of Aniline, and Alizarine Colors, Dyestuff and Chemicals.

Inventors and Manufacturers of Specialties for Wool, Cotton Silk and Leather Dyers.

Our wellknown specialties can ONLY be furnished by us or through our authorized agent, W. W. Hanna, 135 No. Water St., Phila

---

EDWARD HILL'S SON & CO.,

25 & 27 Cedar Street, New York.

Caustic Potash, Calcined Carb. Potash.

HILL'S "A" CUTCH,

OXALIC ACID, SHELLACS, ARSENIC, CEYLON AND COCHIN COCOANUT OIL.

Sole Agents in the United States for THE UNITED ALKALI CO.'S BRANDS OF CAUSTIC SODA.

F. G. PAULY, Pres. I. J. MERRITT, Vice Pres. I. J. MERRITT, Jr., Treas.

Harway Dyewood & Extract Manufacturing Co.,

MANUFACTURERS OF

DYEWOODS, DYEWOOD EXTRACTS and LIQUORS, HAEMATINE ONE DIP BLACK DYE, CUTCH EXTRACT.

Importers of Indigo, Cutch, Madder, Chemicals, &c.

WORKS: FLUSHING, L. I. 184 Front St., NEW YORK.

OAKES MANUFACTURING CO.,

Manufacturers and Importers of

Pure Extracts of Dye Woods and Dye Liquors,

58 STONE & 93 PEARL STS., NEW YORK.

Boston, 58 Pearl St. Atlanta, 123 Marietta St. Philadelphia, 113 Chestnut St.

Archil, Fustic, Sumac, Hypernic, and Cutch Extracts.

Genuine Hematine, Either Liquid, Paste or Solid

GLUTROSE.

Glutrose Sizing will effect a saving of 25% to 30% of flour or starch.

Glutrose Sizing will penetrate the goods better, go farther and finish better than anything else, adding much to the strength, stiffness and lustre of the goods.

Glutrose Sizing has no offensive odor, and goods prepared with it will retain their condition better under severe climatic changes.

Glutrose is a neutral compound and **will not injure colors.**

Manufactured solely by AMERICAN GLUTROSE WORKS,

Office, Penn Mutual Building, - 925 Chestnut Street, - PHILADELPHIA, PA.

ANCHOR COLOR MFC. CO.

464-66 Cherry St. NEW YORK.

Genevan Blue "C" { bright, fast color, specially adapted for Hosiery goods.

Lactic Acid, { free from adulteration. **Does Not Strip.**

Anilines and Alizarines, { **Genevan Blue, Anatase Blue, Genevan Brown, Cotton Warp Blue.**

S. J. COREY

Dyestuffs and Chemicals, Fast Colors for Cotton, Wool and Silk, Shades Matched. Full particulars on application. Nubian One-dip Fast Black for Woolens. Lion Improved Ammoniated Potash Wool Scourer, Alizarine and Hematine Mordants, Etc.

273 Congress Street, Boston, Mass.

AT LAST

Union Goods and Hosiery made of Cotton and Wool in any proportion can be dyed a good serviceable Black in One Operation with the

Save Time, Labor, Steam, Trouble and Expense of Speck Dyeing.

Naumkeag One-Dip Black Dye.

Competent man sent free of expense to start you up. Address,

NAUMKEAG DYE COMPANY, - Salem, Mass.

Samuel L. Peck.
Edward E. Arnold.
William H. Hoffman.

ARNOLD, PECK & CO.

ESTABLISHED A. D. 1815.

Successors to Mason, Chapin & Co.

MANUFACTURERS AND IMPORTERS OF

Indigo, Archil, Olive Oil, Cutch,

— AND —

ALL DYESTUFFS

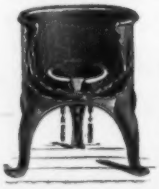
For Printers, Bleachers, Dyers, and Manufacturers

Special attention given to Starches, Gums, and materials for starching, softening, and finishing all fabrics.

WOOL SCOURING POWDERED POTASH.

Works at DIGHTON, MASS. Sole agents for The Mathieson Alkali Works, Saltville, Va.

Providence, R. I. New York, N. Y. Boston, Mass.



Seamless Cast Iron Steam Kettles,

Cast in one piece. No leaking. No boiling over. No waste of steam. Sizes 6 to 200 gallons. Send for Circular "S."

WALKER & PRATT MFG. CO.,

31-35 Union Street, Boston, Mass.

More Clogs Needed.

Joseph Wildman of Phila., reports a healthy demand for dyers' clogs, from various sections of the country. He has recently laid in new stock from England, and is finely equipped for supplying clogs of all grades.

Untaxed Alcohol for the Manufactures and Arts.

The Joint Select Committee, created at the last session of Congress, to investigate and report upon the question of the use of alcohol free of tax in the manufactures and arts, has prepared a series of interrogatories, which will be distributed throughout the country, to such parties as are thought to be interested in the question.

The report of Mr. Henry Dalley, Jr., who was commissioned to investigate the workings of foreign laws governing the use of untaxed alcohol in the manufactures and arts has been submitted, and contains very full and extremely valuable data covering Great Britain, Germany, France, Belgium and Switzerland.

It is the earnest desire of the committee to secure all possible information bearing upon the subject, and it is hoped that parties interested will submit their views to the committee promptly. Sets of the circular letter and blank for replies will be supplied to any applicant, by addressing the chairman, Room 21, Senate Annex, Washington, D. C.

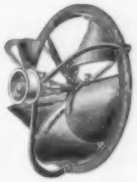
The committee, which is composed of three members of each house, will probably assemble in Washington, soon after the middle of November, for the purpose of formulating a report to Congress, accompanied by the draft of a law which will place domestic industries on as favorable a basis as similar industries in foreign countries. During their sessions in Washington, hearings will probably be given in order to supplement the information obtained through the interrogatories above set forth. Due notice of the time of such hearings will be given to the public.

—W. W. Hanna of the Philadelphia and Buffalo, is just terminating a pleasant trip to England, Scotland and his native home in Ireland. He has been an untiring worker for several years without a good vacation, and his visit abroad just ahead of the business revival, seems fitting. Mr. Hanna is a popular and useful figure in the dyestuff trade, all of whom will welcome his return.

Wire Ties Not a Success.

It had been hoped by the Southern planters that the new wire ties would offer an avenue of escape from the exactions of the flat iron tie trust. The wire ties are made of large, stiff, iron wire, a size smaller than the ordinary lead pencil, 12 feet long and about 30 to the bundle. They weigh about the same as the ordinary flat tie, and when bought by the carload, can be retailed at $1 per bundle. The price of cotton ties has been advanced from about 80 cents to $1.45, according to point of delivery. It now appears that the cotton compresses find that the wire tires will not work. At first the wire was too thin, and cut the bagging, now the difficulty seems to be that the wire is too thick, and not pliable enough for the compress, consequently a number of the compresses are declining to receive bales bound with the wire ties.

HERE IT IS!



WHAT? WHY! Just what you have been looking for,

THE GREATEST **Air Mover** on the American Market.

The Berry Wheel,

MANUFACTURED BY

A. HUN BERRY, 23 West First St., BOSTON, Mass.

THIS IS NO NEW THING. It has been fully demonstrated during the past ten years that this Wheel has no equal for moving Air (hot or cold), Smoke, Steam, Dust, Gases, Fumes of Acids, or anything that floats in the air. For Drying all kinds of products, Wool, Cotton, Glue, Yarn, Cloth, Hair, Leather, Book and Leather Board, etc.

BY OUR METHOD of applying this Wheel and handling the Air, we are prepared to remodel any make or kind of Dryers, and guarantee to increase their drying capacity from 25 to 50 per cent.

We have no long list of testimonials to offer. Anyone can get them. **THEY COST NOTHING**, but we can with perfect confidence refer you to **any or all** of our customers.

Mill Ventilation
Drying
Removing Steam } ARE OUR SPECIALTIES.

POSITIVELY this Wheel has no **BACK DRAUGHT**, and is the only Wheel that discharges evenly over the whole surface of the Wheel.

THERE'S ONLY ONE.

AMERICAN FIRE BRICK WORKS.

Richard C Remmey & Son.

REMMEY'S GAS RESISTING BRICKS,

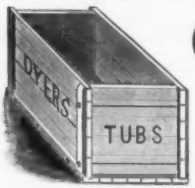
FOR BOILER SETTINGS,

REMMEY'S SULPHUR FUME RESISTING BRICKS,

FOR STACKS.

Man'f'rs of Fire Brick, Blocks and Tiles.

2637-59 CUMBERLAND ST., PHILADELPHIA.



AMOS H. HALL,

Cedar Vat and Tank Factory.

MANUFACTURER OF

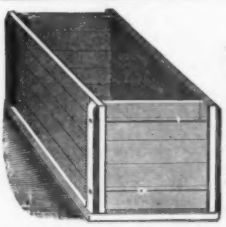
All kinds of **VATS AND TUBS** used by Dyers, Bleachers, Mills, Factories, etc.

ESTIMATES SOLICITED.

North 2d Street, above Cambria Street,

PHILADELPHIA.

Down Town Office, 140 Chestnut Street. Hours. 12 to 1.

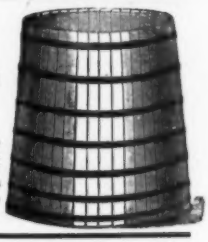


GEORGE WOOLFORD,

Vat and Cedar Tank Factory,

2240-44 N. Ninth St., Philadelphia.

Dye-Tubs, Water Tanks, Wash Boxes, Bleaching Tubs, Blue Vats, Boiling Keirs, etc. **RESERVOIR TANKS**, any capacity or shape, for factories, dwellings villages, farms, etc. **Please send for Estimate, and we will Guaranteed Satisfaction.**



Established 1788.

JOSEPH OAT AND SONS,

232 Quarry Street, PHILADELPHIA, PA.

MANUFACTURER OF

Copper Dye Vats, Vacuum Pans, Steam Cylinders, Logwood Extractors,

And all kinds of copper work used in dyehouses and chemical laboratories.

1908
N. FRONT ST.
PHILADELPHIA
PA.
JOSEPH
WILDMAN
MANUFACTURER OF

DYER'S CLOGS

T. C. ASHLEY & CO.

Importers and Manufacturers of

DYE STUFFS AND CHEMICALS.

145 Milk Street,

Works at Walpole, Mass. **BOSTON.**

Telephone 1580.

NEW ENGLAND

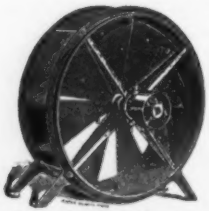
Ventilating and Heating Company.

Our system of Ventilating and Drying by air circulation will improve quality and increase production.

PLANS AND ESTIMATES ON APPLICATION.

OFFICE AND WORKS:

926, 928 and 930 Manton Avenue, Providence, R. I.



From 1 to 6 ft. in Diameter.

COMPLETE VIEW.

JUST THE **VENTILATOR** FOR . . .

Mills and Factories.

A VENTILATOR THAT WILL VENTILATE.

Manufactured by the

PANCOAST VENTILATOR CO.,

OFFICE:

316, The Bourse, PHILADELPHIA, PA.

Facts and Gossip.

—Canada, Montreal. A company has been incorporated here under the name of Talbot Brussels Carpet Co., with a capital stock of $200,000.

—Canada, Toronto. The Schofield Woolen Co. has been incorporated with a capital stock of $40,000. J. & J. A. Schofield, Mrs. Ada Schofield of Oshawa, Mrs. Irwin of Illinois, and C. A. B. Brown of Toronto, are the incorporators.

—Connecticut, Mystic. It is rumored that Providence parties are negotiating with a view of purchasing the mills of the Greenmanville Co. in this place. Rumor also has it that, if the Providence parties secure the mills they will be enlarged and very much improved. The mills are to be sold at auction shortly.

—*Delaware, Newcastle. The stock in the Knowles Woolen Mill has been sold at sheriff's sale to sale to S. W. McCauley, for $2050.

—District of Columbia, Washington. We are advised that C. H. Slaught has leased part of the Washington Ice Mfg. Co.'s plant, in which he will manufacture ramie products. The Washington Ice Co., we understand, is interested.

—Massachusetts, Adams. A despatch states that the Phillips Woolen Mill and property adjoining it, is to be sold at public auction, to settle unpaid taxes.

—*Massachusetts, Boston. We understand that at last all the creditors of the Nonantum Worsted Co. have agreed to accept one of the three propositions of compromise. The insolvency proceedings recently instituted have been stopped.

—Massachusetts, E. Brookfield. It is reported that the Mann Brothers' satinet factory has changed hands, that Clarence Scott, of Worcester, will occupy the mill, and that the Mann Brothers will operate the Sagendorph Mill on Main St.

—*Massachusetts, Lowell. Christopher T. Brooks has been elected director of the Lowell Textile School. He will also be professor of cotton spinning and weaving. Mr. Brooks is 30 years old, and a native of Lancashire, England. It is expected that the school will be opened in Parker Block Dec. 1st.

—*Massachusetts, Millbury. It is rumored that as soon as the affairs of the Aldrich Mill at Woodbury are settled up the Aldrich people intend to purchase or lease the Wheeler Cotton Mill.

CYPRESS

TANKS AND VATS

The Cypress Lumber Co.

CYPRESS TANK . . . FACTORY.

APALACHICOLA, FLORIDA.

Dye Sticks, Drying, Sulphur House and Stirring Poles. In Natural Round, Square, and Turned Shapes. Especially manufactured of Cedar and Hardwood for all Silk, Wool, and Cotton Dyers' Purposes. Cedar Lapping Boards, Tank and Floor Plank, etc. Manufactured by and all information from

E. M. HAEDRICH,

311½ Walnut St., Philadelphia.

—Mr. Thomas Firth of the Firth & Foster Co., Phila., is seen daily at the Company's handsome offices in the Philadelphia Bourse. An observer may note a number of distinguished manufacturers and merchants going in and out of the Bourse building each day. As a *rendezvous* for representative business men it is fast gaining favor, and becoming a place of decided interest to visitors.

—Massachusetts, Warren. Concerning the rumor that land has been purchased for the Arlington Mills, we are officially informed that it is a private investment, and not for the Arlington Mills.

—New Jersey, Ephrata. Westerhoff Brothers and Neiper, of Paterson, N. J., are said to have completed the contract to open a silk mill in the ware house formerly used by L. L. Reddig.

—New Jersey, Hackensack. Articles of incorporation of the Holt Bros. & Co have been filed. Thomas, Cornelius, William, Annie, George and Aggie Holt are the incorporators. The company is organized for the purpose of continuing the silk manufacturing business in this place.

—New Jersey, Newark. We have a report that the Mile End Cotton Thread Mill of East Newark has passed into the hands of Clark's O. N. T. Works. When operated in full, the Mile End Works give employment to about 3500 hands.

—New Jersey, Paterson. The certificate of incorporation of the Knickerbocker Silk Co., has been filed at the county clerk's office. The company is organized for the purpose of manufacturing broad and narrow goods in this city. The capital stock is $30,000, all of which is paid in.

—New York, Amsterdam. We are informed that the surviving members of the firm of Warner, DeForest & Co. will sell at public auction, on November 25th, the firm's property, including 3 knitting mills, the store house and the plot of ground on Market St. The sale is for the purpose of closing up the business of the firm, of which the late John Warner was a member.

—New York, Brooklyn. The Brooklyn Knitting Co., of this place, has filed articles of incorporation, with capital stock of $10,000. They manufacture knitted cotton, woolen, silk and rubber goods.

—New York, New York. R. F. Shaen & Co., Ltd., have been incorporated, for the purpose of manufacturing and dealing in woolen and other fabrics. R. F. Shaen and C. H. Mead, of Yonkers, and Frederick R. Hulbig, of New York City, are the directors.

—Massachusetts, Waltham. A report from this place states that the manufacture of silk linings is to be undertaken at the mill of the Boston Mfg. Co.

—The American Linen Co., Fall River, has placed an additional order for revolving flat cards, electric stop motion drawing frames and intermediate frames with the Howard & Bullough American Machine Co., Pawtucket.

Fires.

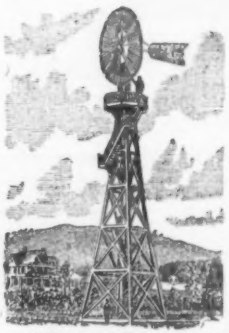
—Massachusetts, Lawrence. The Washington Mills, one of the largest woolen and worsted manufactories in the country, was the scene of a fire on the 26th instant which caused a loss of many thousands of dollars. Mill No 4 and the drying room adjoining, where the fire started, were practically gutted. In some of the other mills a great amount of stock as well as finished goods were damaged by water. The fire originated from spontaneous combustion in the wool department. Fortunately the damage was of such a nature as to allow of the mills being started up after a stoppage of 2 days, thereby preventing some 4000 people from being idle.

—Massachusetts, Wilkinsonville. The mill of C. T. Aldrich, Jr. was entirely destroyed by fire on the morning of October 19th. The mill was on the point of resuming operations after a shut down of considerable duration.

—New York, Brooklyn. The 5-story building on 7th St., occupied by the Etta Knitting Co., was entirely destroyed by fire on the 22d instant. The loss is placed at $250,000.

—New York, Waterford. Fire in the card room of the Eureka Knitting Mill caused a loss of about $500, fully covered by insurance.

—Pennsylvania, Philadelphia. The dyeing establishment of Frederick Neuman & Co., 3211 Frankford Ave., has been destroyed by fire. The loss is estmated at $17,000, principally on the contents which consisted of machinery, dye stuffs, etc.



Office and Salesrooms:

11 John St., N. Y. City.

Factory:

Jersey Avenue and 13th Street, JERSEY CITY.

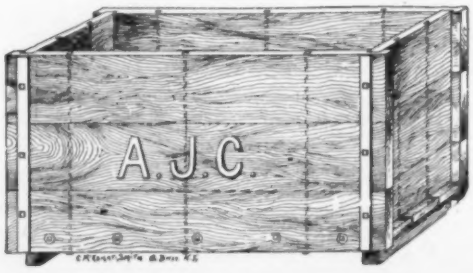
Telephone 238 Jersey City.

CORCORAN'S Tanks, Vats & Dye Tubs are Perfect

Of either Cedar or Oak, Pine or other woods. Bands fitted with **Adjustable Lugs** and **Draw Rods** with friction plates. Over 200 sizes. Send for information.

STORM DEFYING WIND MILLS.

Most durable, always satisfactory. They are working in every country on earth.



CHAS. R. EARLE, Pres and Treas. M. W. GARDINER, JR., Sec'y
AMOS. W. C. ARNOLD, Agent

PHENIX IRON FOUNDRY, Providence, R. I.

Manufacturers of

Calenders, Starch Mangles, Calender Rolls of Paper, Cotton and Husk,

Bleaching AND Dyeing Machinery

Printing Machines, Shafting, Pulleys, Gearing, Hydraulic Presses, Tenter Drying Machines, Ageing Boxes, Expansion Pulleys, Hollingworth Automatic Feed, Can Drying Machines, Grate Bars, Cloth Cutting Machines, Silk, Lace and Cotton Finishing Machinery,

and Sole Manufact'rs of NAGLE POWER FEED PUMP.

Send for Catalogue.

LINCOLN & COMPANY,

MANUFACTURERS OF IMPOVED MACHINERY FOR

Bleaching, Dyeing, Drying and Finishing.

Sole Makers for the United States of

Mather & Platt's Patent Self-feeding Tenters.

Complete Plants for

BLEACHING, ANILINE BLACKS AND INDIGOS.

54 to 70 Arch Street, - HARTFORD, CONN.

BIRCH BROTHERS,

Bleachery Machinery.

Also TULLAR'S Patent Stretching, Straightening and Drying Machine for

TUBULAR FABRICS.

KENT ST. AND FITCHBURG R. R., SOMERVILLE, MASS.

COPPER PRINT ROLLERS AND SINGE PLATES

For CALICO PRINTERS and DYERS.

Best of Workmanship, Quick Delivery and Bottom Prices.

New Bedford Copper Co., New Bedford, Mass.

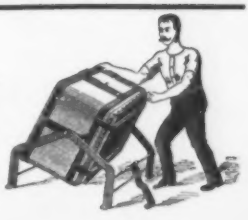
Copper Swing Dye Tank in Iron Frame.

COPPER WORK FOR DYERS

Silk Finishers, Chemical Works, etc.

Vacuum Pans, and Copper Apparatus for Logwood Extract Manufacturers. Jacket Kettles, Varnish Kettles.

Estimates furnished to all parts of the country.



CHAS. BRABENDER, Sen.,

Patterson Copper Works, Gun Millyard, Paterson, N. J.

Nye & Tredick,

Manufacturers of

PLAIN AND AUTOMATIC CIRCULAR RIB

KNITTING MACHINERY

for Knitting Ribbed Shirts, Drawers, Tights, Combinations, Skirts, Jackets, Caps Bicycle and Athletic Suits, Hosiery, Shirt Borders, Cuffs, Etc.

Automatic Seamless Machines.

AUXILIARY MACHINES AND SUPPLIES.

606 Arch St., Philadelphia, Pa., U. S. A.

ESTIMATES GIVEN FOR THE

Complete Equipment of a Knitting Mill.

KNITTING MACHINE CYLINDERS.

PAXTON & O'NEILL,

129 Bread Street, - - - Philadelphia, Penn.

Originators of the Weldless Forged Steel Cylinder. Dials, and Cylinders all sizes up to 24 inch, for the different Circular Rib Frames, Seamless Knitters, etc. The Finest that can be cut, and the Best as to Material Accuracy and Durability.

H. BRINTON & CO.,

Successors to

BRINTON, DENNEY & CO.,

Builders of a Full Line of

CIRCULAR RIB and SEAMLESS KNITTING MACHINERY,

FOR

UNDERWEAR AND HOSIERY.

213 and 215 Race Street

PHILADELPHIA, PA.

Knit.

New Mills.

—Mississippi, Winona. We have a report that Messrs. Dimond and Harvey will establish a knitting plant for the manufacture of hosiery, at this place.

—New York, Amsterdam. R. O. Hagedone is erecting a building in the rear of his residence on McDonnell St., to be used as a knitting mill.

—*New York, Covington. We have further information concerning the woolen mill projected for this place, to the following effect: The plant will be erected for the purpose of manufacturing knit underwear. They will utilize both steam and water for running the plant. The capital will be $15,000. Dr. W. N. MacAetney is the president, and William G. Cushman treasurer.

—New York, Johnstown. It is said that G. P. Shiel & Son are erecting a glove factory on Charles St.

—*Pennsylvania, Bristol. Work has been commenced on the site of the Providence Hosiery Mill, which was burned some time since, preparatory to erecting a new mill. It is expected that the mill will be in operation by early spring.

—Pennsylvania, Fort Carbon. F. H. Wintersteen has gone to New York for the purpose of inspecting and purchasing machines for a proposed new hosiery factory, which he intends erecting.

—Pennsylvania, Union Deposit. A. N. Kuhn, the wire fence manufacturer, is increasing the size of his building with the intention of engaging in the manufacture of hosiery.

Enlargements and Improvements.

—North Dakota, Grand Forks. Information reaches us that the Grand Forks Woolen Mill has recently established a shirt and underwear manufacturing department.

—*Pennsylvania, Mohn's Store. The addition to the hosiery mill of the Wyomissing Hosiery Co., which we reported as being erected, will contain enough more machines to bring their total up to 52.

Mills Starting Up.

—Massachusetts, Lowell. The mill of the Lowell Hosiery Co. is now running in full. During the time they were shut down a number of changes and repairs were made.

—*New Hampshire, Franklin Falls. The Sulloway Mills have resumed operations on full time. A number of repairs have been made during the time they were shut down.

—New Jersey, New Brunswick. One hundred employees have commenced work in the Norfolk and New Brunswick Hosiery Co.'s mills which have been idle for a number of weeks.

—New York, Amsterdam. Preparations are now being made for resuming operations in the United Knitting Co.'s mills, which have been idle for some time.

—New York, Cohoes. The Cascade Knitting Mills, which have been idle for some time are now in full operation.

—New York, Cohoes. The Novelty Knitting Underwear Mill has been started up on full time.

—*New York, Cohoes. The Star Knitting Mills have been started up.

ESTABLISHED 1865.

Robert W. Scott. Louis N. D. Williams.

CABLE ADDRESS, •SCOWILL•

SCOTT & WILLIAMS,

BUILDERS OF

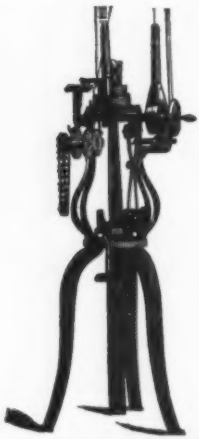
KNITTING MACHINERY.

WORKS 2079 EAST CUMBERLAND ST.

PHILADELPHIA.

General Offices: KNICKERBOCKER BUILDING, S. W. Cor. 6th & Arch Sts.

Show Rooms: Sixth & Arch Sts. Phila.



Pepper Manufacturing Co.

Lakeport, N. H.,

Manufacturers of

Knitting Machinery,

INCLUDING

Pepper's Flat-Ribbed Cuff Machine,

Automatic Welt and Loose Course Machine for Sock Tops. New Circular Stripes with Welt, Loose Course and Striping (Automatic), for Shirt Cuffs, Sock Tops, Hose Legs, Wristers, etc.

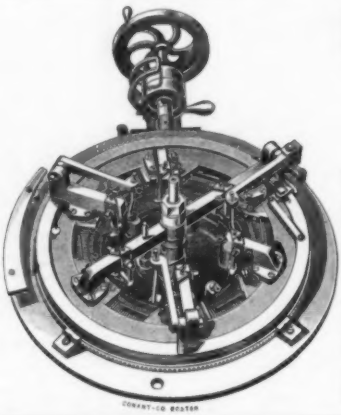
GOLF AND BICYCLE STOCKING MACHINES.

All kinds of

CIRCULAR RIBBED MACHINES,

For Men's Underwear, Ladies' and Misses' Hose Legs & Legnigs.

CORRESPONDENCE SOLICITED.



KNITTING MACHINES

of LATEST CONSTRUCTION

giving **GREATEST PRODUCTION,**

and with points of merit not to be found in any other style of machine for

SWEATERS,
UNDERWEAR,
LEGGINS.
ANKLETS OR CUFFS.

Automatic racking or shogging; Sweater Collar Machines.

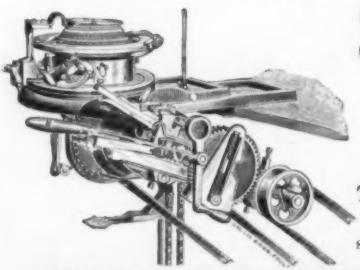
Racked or Shogged Borders onSweaters are our Specialties.

Leighton Machine Co., Manchester, N. H.

EXCELSIOR

Knitting Machine M'f'g Co.,

MANUFACTURE THE ONLY



3-4 AUTOMATIC

Knitting Machine,

With or without Fashion Device

That will stand all Factory Strain.

Address all communications for prices and samples on the 3-4 to the

EXCELSIOR KNITTING MACHINE M'F'G CO.,

Cor. Birch St. and P. & R. R. R. So. Bethlehem, Pa.

—New York, Cohoes. The Fashion Knitting Mill, which has been idle for some time, is once more running full time.

—New York, Oswego. The knitting works of Frederick Conde, which have been closed down for some time, have commenced running 8 hours per day with a force of 300 hands.

—New York, Stillwater. The Saratoga and Hudson River Hosiery Mills have resumed operations on full time.

—New York, Waterford. The Kavanaugh Knitting Co.'s mill at orthside has resumed operations in full.

—New York, Waterford. The knitting mill of the Ford Mfg. Co. has resumed operation after a shut down of 2 weeks.

—New York, Waterford. The Hudson Valley Knitting Co. will probably resume operations at an early date.

—Pennsylvania, Allentown. The Allentown Knitting Co. has started up its mill after an idleness of six weeks.

—Pennsylvania, Centreport. A correspondent writing from Pennsylvania states that the new mill of the Centreport Co. is again in active operation.

—Pennsylvania, Nazareth. Notice has been posted in the mills of the Nazareth Mfg. Co. to the effect that the mills will resume operation at once and on full time.

—Pennsylvania, Rigglesville. L. S. Clymer has resumed operations at his knitting mill.

—Pennsylvania, Scranton. Work in some of the departments of the Lackawanna Knitting Mill has been resumed. The mill has been idle for over a month.

—Pennsylvania, Spring City. The firm of Langham & Reiff has been incorporated as the National Underwear Co. They will resume business in their new building about November 1st. This firm was recently burned out.

—Vermont, Bennington. The Bennington Knitting Mills have resumed operations with a full force of help and on full time. The prospects are that the mill will continue to be run steadily.

Mills Shutting Down.

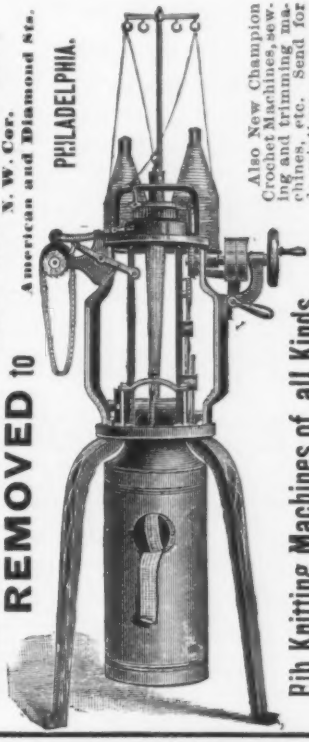
—New Jersey, Phillipsburg. We learn that the knitting mill which was removed here from Vineland some time since, and of which D. I. Seifert is the proprietor, has been closed.

—New York, Catskill. Mr. Van Brocklin, of the Catskill Knitting Mills Co., has withdrawn from the firm. The mill has been closed down in order to form a readjustment or reorganization of the company's affairs.

The Standard Machine Co.

The new improvements of the Standard Co., have proven successful. "Their double hosiery sole and high spliced heel," said Mr. Sprowles, "are especially valuable innovations and are highly endorsed by the trade." The standard Co. have enjoyed more than a fair business, even during depressed times, and, now that disturbing political questions are settled they predict a solid and early revival.

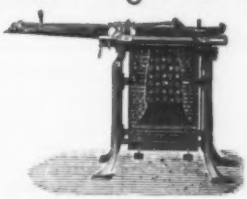
CHAMPION SEWING MACHINE COMPANY,
REMOVED to N. W. Cor. American and Diamond Sts. PHILADELPHIA.



Also New Champion Crochet Machines, sewing and trimming machines, etc. Send for descriptions.

Rib Knitting Machines of all Kinds.

Grosser's Unrivalled
Flat Knitting Machines



For Scotch Fancy Pattern Golf or Bicycle Stockings, Fancy Sweaters, Gloves, Mittens, Caps, Cardigan Jackets, Ladies' Skirts, etc. Seamless Shaker Sweaters (both armholes automatic, selvedge open), Theatrical and Athletic Tights. Four section full automatic power sweater machine. Four section full automatic, full-fashioned sleeve machines with automatic widening of the fabric.
SPECIALTY. Regular plain hand sweater machine, 5 needles to inch, 18 inch needle bed, with 182 needles, new improved drop lock and two yarn carriers, front and back, for the selvedge edge, laced front and two-color striping attachment, only **$98 00** net cash

A. MUELLER.

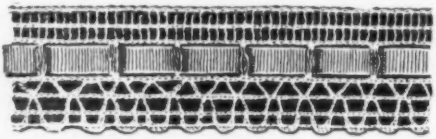
U. S. BRANCH OFFICE AND SHOWROOM:
760 LEXINGTON AVENUE, - BROOKLYN, N. Y
Write for Descriptive Catalogue.

PERSEVERANCE MILLS.

Krout & Fite Man'f'g Co., MANUFACTURERS OF

SILK AND COTTON NARROW FABRICS,

Spring, 1897, Samples Now Ready.

Lace  Edgings

FOR LADIES' JERSEY RIBBED UNDERWEAR.

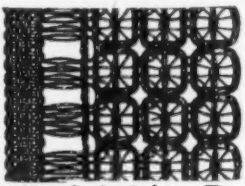
Spool Tapes a Specialty. 2632-40 Mascher Street, Philadelphia, Pa.

FLEMING & CHAPIN,

Braids Cotton and Worsted Tapes Cotton and Silk Yarns Cotton Warps, Etc. Threads

Use the Genuine Patented

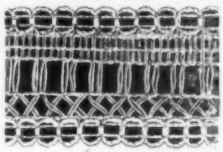
CROCHET LACE EDGINGS.



Manufactured under letters-patent granted December, 1891.

The Best Splicing Yarns in all Numbers.

215 Church St., Philadelphia, Pa.



GERMANTOWN

LACE AND EDGING WORKS.

F. A. BYRAM,

Cumberland Street, Philadelph'a, Germantown, Pa.

FLEMING & CHAPIN, 215 Church St., Selling Agents.

GIBBONS FRAME

Sewing Machines, with or without Trimmers,

Welting Machines, with concealed stitch for tops of stockings.
Trimmers attached to all kinds of Sewing Machines.
New and Improved Looping Machines, stitch flat and elastic; sample of work on application.

Manufactory, Second and Diamond Sts., Ppiladelphia.

SHIRT Border Machines

Four and Five Section Flat Cuff Machines.

The Art of Knitting.

The Coo-perative Knitting Machine Co., Leicester, England, has recently published an attractive little pamphlet, which touches upon the development of hand knit seamless hosiery within the last half century. George F. Sturgess, the general manager of the company, is the author of the work, and lays special stress upon the fact that whereas fifty years ago hand knitters reached a speed of 50 stitches per minute, now it is not impossible to obtain a speed of 50,000 stitches per minute by machine.

The pamphlet is attractively gotten up, and gives minute and explicit directions in regard to the setting up and operation of Co-operative knitters, with directions for making a wide variety of knit fabrics, both plain and fancy work, and French knitting.

The reading is marked by marginal head notes, and well indexed. Treating, as it does, upon the use of the seamless type of hosiery machinery, there are many points that are of interest and value to those using the American type of machinery, and the instructions are so exact in regard to the different stitches, that every knitter of seamless hosiery will probably find it of interest.

Price of the work is 2 s. 6 d. (62 cents), post free.

A New Automatic Knitter.

Arthur Wrightson of Phila., received Oct. 20th, letters-patent on a new full automatic knitting machine. Mr. Wrightson has developed the machine with great care and deliberation and believes the trade will quickly endorse his invention. Further mention is made of this machine elsewhere.

—Joseph T. Pierson of Phila., is building a handsome brick office adjoining his hosiery board and packing box factory. He has also purchased some valuable connecting property.

—The Reliance Machine Works of Frankford, Phila., are operating as usual since the death of Mr. Houseman. Mr. Sprowles of the firm said recently that no immediate change would occur in the business.

—Andrew Adie of the River Spinning Company, Woonsocket, R. I., has been much at the mills of late, and Joseph Scull has met the business callers at the Company's office in the Bourse building, Philadelphia. Mr. Scull is widely known in the yarn trade and well versed in that fofricate specialty.

—D. J. Oldenwelder, who has for some time past been buyer for the firm of Oldenwelder & Co., Bath, Pa., has been recently admitted to the firm, and become general superintendent of the factory. Mr. Oldenwelder is a young man of great ability, and thoroughly understands the manufacture of plain and fancy seamless hosiery. He is, we believe, one of the youngest men to occupy such a responsible position in the trade.

—The American Tool & Machine Co., who have only quite recently moved into their splendid quarters at 302 Federal St., are obliged to move again, for their present quarters will be torn down, as the land is required for the construction of the new Southern union station. A new building is to be erected for them on Beach and Utica Sts., by the Abbott Lawrence estate. This building will be constructed to suit their requirements in every respect, and the location will be fully as accessible. Several new buildings have been taken for the new station site, and theirs is among the number.

$17.50 Per Yard.

A curious suit was brought by Mrs. Gertrude Rhinelander Waldo, against Henry Hilton, of Hilton, Hughes & Co., last month.

Mrs. Waldo testified that in 1878 she had ordered seventy-seven yards of some dress brocade at $17.50 a yard. The firm did not have it in stock, but promised to import it for her. This they did; but before the goods arrived, Mrs. Waldo had gone into mourning for a near relative, and she asked the firm to take back the brocade. They declined, and Mrs. Waldo paid them $1347.50 for the goods. Then Hilton, Hughes & Co., she says, agreed to sell the goods for her. Mrs. Waldo said she called at the store from time to time to learn about the brocade. The goods were on hand all through 1879, 1880 and 1881. In 1882, the firm sold a part of the brocade for $225.33, and paid that amount to Mrs. Waldo. About that time, however, Mrs. Waldo concluded to use the goods herself, but she was never able to get them. The firm told her that the goods had gone to Pottier & Stymus. Mrs. Waldo was never able to get the goods; hence the suit. A verdict was given for $892.—[The Upholsterer.

—The J. & P. Coats Co., Ltd., have acquired the Mile End Thread Works of Newark, N. J.

CRANE MFG. CO.
LAKEPORT, N. H.
Spring Needle Circular Knitting Machine
For Hosiery, Shirts, Drawers, Jersey Cloth and Stockinet.
A Specialty of Hardened Bladed Burr Wheels with Self Oiling Brackets.

The BALLOU
Automatic Ribbed Knitting Machine
Built with **Sectional Cam Ring** and the most perfect **weight take-up**. Best, Strongest and Most Durable Machine. **Two Feed Double Knee Machines.**
We can add to our own or other makes now in use. Also Brushing Machines.
Lewis Jones, 601 & Media Sts. Phila. Pa.

WE NEED NO SPECIAL POINT
To prevent the needle from picking up the brass nor special mechanism to prevent injury to the brass, for the needle in our looper never strikes anywhere but the centre of the point.
HEPWORTH & CO.,
Lehigh Ave. & Mascher Sts., Phila., Pa

HODGSON & HOLT MFG. CO.,
Builders of the
Abel Winder, Steam Presses,
Fulling Mills, Seamers and Loopers, Ribb Leggers, and French Footers.
Send for Illustrated Catalogue.... **LACONIA, N. H**

STEPHEN A. ASHMAN,
Forged Steel Cylinders and Dials
For Knitting Machinery.
3 Fetter Lane, PHILADELPHIA.

The Unique

FULL AUTOMATIC

SEAMLESS KNITTER

Any kind of stock can be used.

Transfer device most practical.

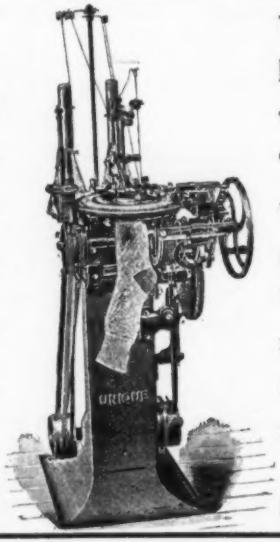
No delicate parts. Simple construction.

Needles all alike and inexpensive.

No sliding sinkers to wear out.

No weights required.

JAMES TAYLOR,
Sole Selling Agent.



THE BEST MACHINE
ever invented for
Knitting Wool Stockings.

The best fabric.

Changes yarn in the heel and toe automatically.

Well built, strong and durable.

High grade.

Light running.

No cylinder to give trouble.

Machine easily managed.

Most liberal heels.

835 Arch Street,
PHILADELPHIA, PA.

THE
Merrow High Speed Crochet
and Scallop or Shell Machines.

For finishing the edges of Knit Goods, Bed Blankets, Horse Blankets, or other fabrics.

For particulars and samples, address

THE MERROW MACHINE CO.,
133 Sheldon St., HARTFORD, CONN

BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

JOS. T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA.

CIRCULAR RIB KNITTING MACHINES,

Carefully designed and well made with Solid Forged Steel Cylinders and Dials, Segmental Cam Rings, Encased Take-up, Stop Motions, etc. Standard Sizes, Reasonable Prices. Also

KNITTING MACHINE CYLINDERS AND DIALS.

STAFFORD & BABCOCK, - Little Falls, N. Y.

Facts and Gossip.

—New York, Nyack. E. E. Hathaway and C. C. Wernle have moved their knitting plant from Augusta, Ga., to this place, where it will be set up for manufacturing shirts, leggings, and other knit goods. They will commence operations with 40 machines.

—New York, Sand Lake. The sale of the Kane Knitting Mill has again been postponed until November 21st.

—New York, Utica. A certificate of the payment of the capital stock of the Walcott & Campbell Spinning Co. has been filed in the county clerk's office. The amount is $100,000.

—New York, Waterford. George H. Morrison of Troy, has been removed from the receivership of the Hudson Valley Mill and ex-district attorney T. F. Hamilton, of New York City, appointed in his place.

—Ohio, Cincinnati. A company, to be known as the United States Rope & Supply Co. has been incorporated with a capital stock of $10,000. Cincinnati is said to be the field of their future operations.

—Ohio, Zanesville. We understand that W. H. Bush, proprietor of the Star Woolen & Hosiery Mill, Barnesville, Ohio, is considering the advisability of moving his factory to this place, provided a suitable location for a site can be secured.

—Pennsylvania, Birdsboro. Concerning the report that Miller & son, silk manufacturers, of Paterson and Passaic, N. J., contemplate locating in this place, Mr. Miller informs us that the report is entirely erroneous.

—Pennsylvania, Philadelphia. E. K. Bready, proprietor of the Girard Worsted Co. is now located at the corner of Huntington and Howard Sts.

—Pennsylvania, Philadelphia. Information reaches us that the plant of the Pennsylvania Knitting Mills is now in full operation at 1116 Montgomery Ave.

—Pennsylvania, Philadelphia. The firm of Lewis Weber & Co., knit goods manufacturers, has been dissolved. Lewis Weber will continue to operate the Philadelphia mill, while Albert Weber and George Knerston will continue to do business in the Reading mill.

—Pennsylvania, Philadelphia. Frank Bartlett & Co. are now established in business at 191 Berks St. They will manufacture cotton and woolen textile goods.

—Rhode Island, Woonsocket. Application has been made for the appointment of city treasurer Samuel P. Cook, as assignee of the Woonsocket Bobbin Works, in place of James E. Cook, deceased. In 1895, this company, which is composed of David Bass, Ira Cross and Wm. O. Newton, made an assignment of all their property to the late James E. Cook for the benefit of their creditors.

—Tennessee, Parrotsville. Robert B. Bell informs us that he will not place cotton machinery in the mill recently purchased by him, as it has been reported that he would do, but that he will operate the plant as a flouring mill.

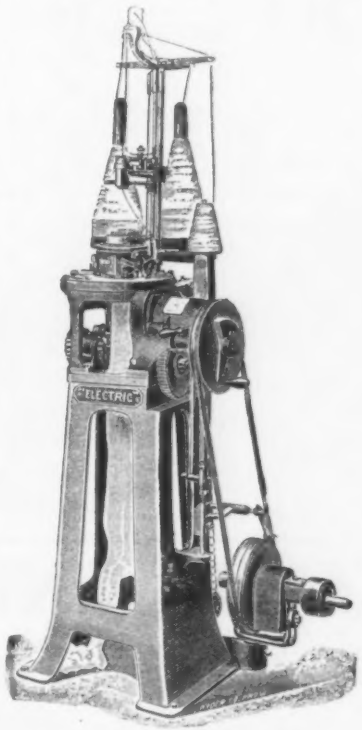
—Virginia, Manchester. A stock company has been organized under the name of the Richmond Cotton Mills Co. The capital stock is $300,000. John A. Smith, president; Alfred G. Bishop, New York City, secretary and treasurer. A number of Northern capitalists are said to be interested in this company.

E. Jenckes Man'f'g Co.,

75 WEEDEN STREET,

PAWTUCKET, R. I.

Proprietors and Builders of



"ELECTRIC'

AUTOMATIC KNITTING MACHINE,

FOR

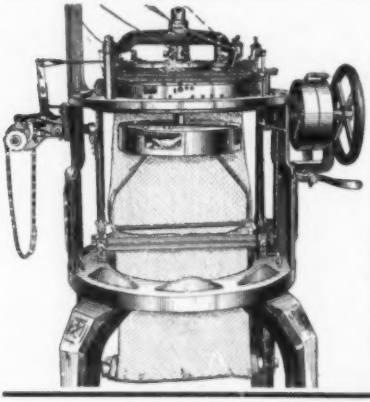
Seamless Hosiery, Wool, Cotton or Silk,

From the Coarsest to the Finest Gauge.

Among the many strong claims for this machine are

The Highest Speed,
First Quality Work,
Simple Construction,
Easy to Learn

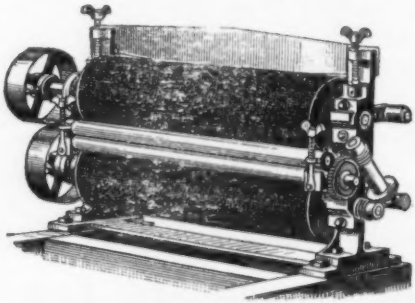
Send for Descriptive Circular and Terms.



KEYSTONE
AUTOMATIC NAPPING MACHINE.

This machine puts on a first-class napp, touching every spot in the fabric, and requires no attention; does not interfere with the knitting; it has no connection with the Dial or Cylinder; it brings out the goods the regular width and length, after once adjusted, and brings out rib tops and bottoms so they can be cut straight across with one cut. There is no flying waste from this machine, around the mill. These machines can be seen in operation at our works in Spring City. Any further information desired will be cheerfully given.

Keystone Automatic Napping Machine Co., Ltd.,
SPRING CITY, PA.



S. B. ARDREY & SONS,

Bristol, Pa , U. S.

Manufacturers of the New and Improved

Brushing Machine

For Fleecing Knit Goods.

Carefully Constructed, Substantially Built,

Filtering Oilers,

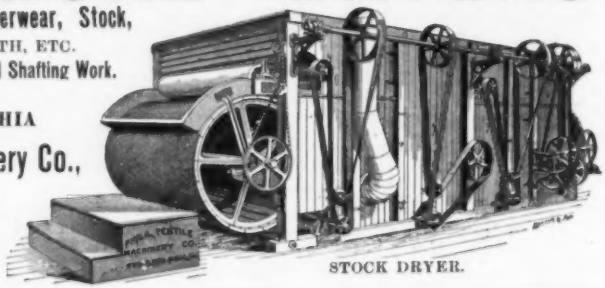
Parts Removable Without Disturbing Frame,

Delicate Adjustment, High Speed with Durability.

CYCLONE DRYERS

For Stockings, Underwear, Stock,
YARNS, CLOTH, ETC.
Textile Machinery and Shafting Work.

PHILADELPHIA
Textile Machinery Co.,
Hancock Street
above
Lehigh Ave.,
PHILADELPHIA, PA.



STOCK DRYER.

DESIGNS. Expert Service.

I am prepared to furnish to manufacturers, advice, opinions, or suggestions as to styles and patterns of goods. If desired I will furnish details of weave construction, stock to be used, and finish required, of any pattern or sample submitted to me. I am in constant touch with the New York market, and have the necessary technical knowledge. I am not simply a picker out of patterns, but will do that work if desired. My terms are not unreasonable. All communiations confidential. Address **DESIGNER**, P. O. Box. 444 Brooklyn, N. Y.

Commercial Travellers' Fair.

What promises to be a most interesting event, and certainly with a most worthy object, will be held at Madison Square Garden, New York City, December 15 to 28. It is a fair for raising $150,000, for the purpose of completing the national home and hospital for worthy indigent commercial travellers, which is now in process of erection at Binghamton, N. Y. This home is an institution which cannot be too highly commended. Already great progress has been made, but an earnest effort is now needed to complete the building, and prepare it for occupancy.

The directors of the fair invite business men all over the country to contribute to the guarantee fund, and also manufacturers, merchants and business men throughout the United States are asked to contribute all manner of goods, to be placed on exhibition and sold for the benefit of the home, while the ladies who are interested in the work are asked to donate all kinds of fancy work. Like all fairs, the object is of course benevolent, but as a purely business undertaking, a remarkable series of attractions, novel features, etc., have been arranged, which it is expected will attract and entertain an enormous crowd of visitors. The director general is Col. A. C. de Frece, and the headquarters are in the Madison Square Garden Building.

Anecdotes of A. T. Stewart.

Apropos to the sale of Stewart's old house to John Wanamaker, many incidents of A. T. Stewart's life are being related, thoroughly characteristic of him. One of the secrets of his success, was his remarkable memory. He could carry in his mind the character as well as amount of every stock in the house. None of the buyers could mislead him. A writer in The Upholsterer tells how on one occasion, in passing through the upholstery stock, he asked why a piece of tapestry was marked to sell at a certain figure; he was informed of its cost in currency. "I know what it cost," said he, 'it cost so many francs" That was an article which had been imported three years before and had not since come before his attention. He was very close; at one time he sent one of his office boys up to his Fifth avenue home. Feeling in his vest pocket for ten cents, the fare at that time, he paused a moment, then snapped out: "Go down and take my carriage." The astonished lad was driven up and back and the 'bus fare was saved. The amount of sales made in the early seventies was something enormous; many a day the total footed up $1,000,000. In 1870, the profits coming to Stewart himself amounted to $5 000,000, besides that earned by his three partners. Probably few learned more of his private affairs than one boy with him at the time, who is now well-known in the trade. One day, desiring a general cleaning out, he instructed this lad to go through his mass of private papers and file away any of value, destroying those unimportant Among a vast quantity of begging letters, invitations to balls, picnics, etc., the boy found a small black bag, filled with French gold coins. When he called Stewart's attention to it the old man became almost wild. He seemed dazed for about half an hour, when he shook himself together, muttering, "to think that I—I should have been so careless. He pocketed the money and walked off. Stewart, it is said, was the first to give most encouragement to Henry Davenport in the manufacture of upholstery goods in Philadelphia. The old tea-box pattern in tapestry goods first brought out had a big run. It cost Stewart $1.75 and they sold it for $3.50, and were months behind in delivery.

WM. COREY CO.,
Manufacturers of Knitting Machine
Latch Needles,
MANCHESTER, N. H.

Excelsior NEEDLES
The best hosiery needle in the market.
Manufactured by
Wardwell Needle Co., Lakeport, N. H.

LOYAL T. IVES,
MANUFACTURER OF ALL KINDS OF
Spring Knitting Needles
NEW BRUNSWICK, N. J.

ORION TREAT,
MANUFACTURER OF
SCREW RIVETED BALMORAL AND DOUBLE RIB NEEDLES.
(Patented May 6, 1890.)
Manchester Green, - Conn.
All work guaranteed.

H. LYDALL & FOULDS,
Manufacturers of all kinds of
Knitting Machine Needles, Narrowing Points, Hooks, etc.
Pat. Screw Rivet Balmoral Needles a specialty
MANCHESTER, CONN.

Wm. Breedon & Son,
Manufacturers of
Spring Knitting Needles,
And Burr Blades of all kinds.
Amsterdam, N. Y.

STAR NEEDLE CO.
Spring Knitting Needles and Points from the Best Cast Steel. Satisfaction Guaranteed.

S. K. Paramore
Manager.
New Britain, Conn.

STANTON & LEWIS,
Central Steam Forge
Knitting Machine Cylinders and Dials.
316 and 318 BRANCH ST.,
PHILADELPHIA, - PA

JAMES H. QUILTER,

Certified Teacher of Frame-Work Knitting. City and Guild, of London Institute, England.

Information given on all subjects relating to the manufacture and finishing of Hosiery and Hosiery Fabrics.

Estimates given for all kinds of machinery used in the knitting and allied trades.

Editor and Sole Proprietor of the

KNITTERS CIRCULAR

AND MONTHLY RECORD.

The only British journal solely devoted to the interest of the hosiery trade.

Annual Subscription, post free, 50 cts.

Send for sample copy.

ADDRESS:

11 Millstone Lane,

LEICESTER, England.

THOMAS KENNEDY,

Successor to N. H. BRUCE,
Established 1872,

COHOES, N. Y.

SPECIAL MACHINERY

for **Knitting Mills, Collar and Corset Factories.**

CLOTH CUTTERS—Power and Hand.
FOLDING, WINDING AND CUTTING machines, automatic.
POWER NECK MARKERS.
RIB CUTTERS.
Irregular Form

CUTTING MACHINERY

for Cloth, Knit Fabrics, etc.

☞ Write for Catalogue.

JOHN S. PALMER,

Manufacturer of

PAPER BOXES **for Hosiery and Textile Goods.**

Metal Edge Boxes or Heavy Goods.

35 Wistar St., Germantown, Pa.

LACINGS

For Overshirts and Underwear,

Both Tipped and Tasseled, and

OVERSHIRT NOVELTIES.

For Samples and other information, address

HEPNER & HORWITZ, 30 Howard St., N. Y.

Philadelphia Textile School

OF THE

Pennsylvania Museum and School of Industrial Art.

The only school in Am rica which TEACHES THE DESIGNING AND MANUFACTURE OF ALL CLASSES OF TEXTILES.

Carding, Spinning and Finishing,
Chemistry and Dyeing.

For circulars and other particulars, address,

E. W. FRANCE, Director,

Broad and Pine Streets, - Philadelphia, Pa.

Silk.

New Mills.

—*New Jersey, Stirling. H. Alfred Streuli, of Plainfield, who owned the Stirling Silk Mill, which was burned two weeks ago, has decided to rebuild, and the work will be started in a few days.

—*New York, Port Jervis. The new silk mill for W. H. Wylie, formerly of Paterson, N. J., is rapidly nearing completion. The new firm will be known as The Reliable Silk Mfg. Co. The plant will probably be in operation by Jan. 1, 1897.

—*Pennsylvania, Titusville. The Titusville Board of Trade, acting with the Titusville Industrial Association, have entered into contract with Charles Horne, of New York, for the removal of his silk mill to this city. The new plant will cost about $75,000, and 300 hands will be employed. Work on the building is to be commenced at once. This is the plant we referred to in our last issue, as likely to be located here.

—Vermont, Smithville. The old soapstone factory has recently been purchased by James S. Gill, proprietor of the Ludlow Woolen Mill, at Ludlow, Vt., and he is now having it converted into a mill for the manufacture of silk ribbon. He expects to have the mill ready for business about December 1st.

Enlargements and Improvements.

—*New Jersey, Paterson. William Ball's new silk plant, which includes a building 250 by 50 feet, 3 stories and a basement, is completed.

—*Pennsylvania, Bethlehem. The new addition to the Bethlehem Silk Mills is being stocked with machinery, and will soon be in readiness for starting up. This increase brings the plant up to about double its former capacity.

Mills Starting Up.

—Connecticut, South Manchester. A report states that the silk mills of Cheney Brothers have resumed operations on full time. When operated in full they employ 1000 hands.

—Massachusetts, Holyoke. The mill of the Skinner Mfg. Co., employing a force of 500 hands, has resumed operations on full time.

—New York, Fultonville. The Starin Silk Fabric Co. have started their mill up on full time, with a full force of help.

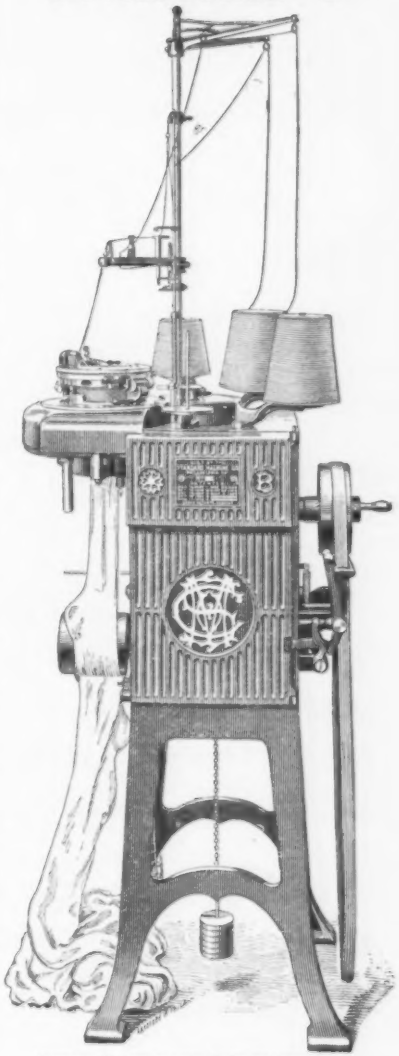
—Pennsylvania, Bethlehem. The Lehigh Valley Silk Mill is now running full time.

—Rhode Island, Pawtucket. The plant of the Royal Weaving Co., which has been idle for several weeks, has been started up on full time.

Failures and Suspensions.

—Pennsylvania, Philadelphia. John Lunn, proprietor of the Kennebec Woolen Mills, 2025 Naudain St., Philadelphia, has made a general assignment for the benefit of his creditors. Judgments aggregating $20,000 have been entered, and execution issued. It is reported that liabilities, including the judgment creditors, amounted to about $70,000, with assets of about half that sum.

"STANDARD B"



COTTON STATES AND INTERNATIONAL EXPOSITION.

ATLANTA, GA., November 1st, 1895.

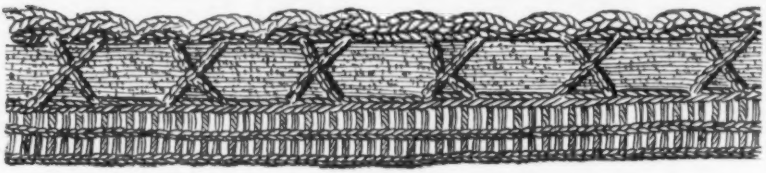
This certifies that the Appropriate Jury has awarded to the STANDARD MACHINE CO., of Philadelphia, Pa., **Diploma of Honor** and **GOLD MEDAL—Automatic Knitting Machinery.**

DANIEL C. GILMAN,
President Jury of Awards.

C. A. COLLIER,
President and General Director.

STANDARD MACHINE CO.

508 Minor Street,
PHILADELPHIA, - PA.



DO YOU KNOW

THAT the Edging Manufacturers of the United States can be counted on the ***FINGERS OF ONE HAND?***

THAT half of them have embarked in the manufacture of ***LADIES' AND CHILDREN'S JERSEY RIBBED UNDERWEAR,*** and dispose of their Edgings through ***SELLING AGENTS,*** not ***DARING*** to market them direct?

THAT some of these manufacturers sell their underwear ***DIRECT*** to the ***RETAILERS?***

THAT it is suicidal for you to buy Edgings of such manufacturers as every yard you purchase made by them, assists them to compete with you on your underwear?

You Should Know

THAT there is only one manufacturer of Edgings and Braids,

WHO makes a complete line embracing every pattern shown,

WHO is constantly producing new and original effects,

WHO sells his product only direct to the trade, thereby avoiding all vexatious delays incident to disposing of products through nondescript selling agents and dealers,

WHOSE goods are recognized standard for qnality, design and finish,

WHOSE plant equals that of all other mills combined, and is capable of delivering in 24 hours any desired pattern,

WHOSE weekly output—1,800,000 yds.—is sufficient guarantee of ability to promptly execute orders of any magnitude,

WHOSE name and label appears on every spool of goods he produces, guaranteeing length of same,

WHOSE organization and facilities are ***INCOMPARABLE,***

WHO in a word, is the originator and developer of the edging business, and is the acknowledged leader in this line,

FRIEDBERGER,

Germantown, - - Philadelphia.

Miscellaneous.

New Mills.

—New York, Brooklyn. A new cordage plant has recently been started here by James I. Waterbury.

—New York, West Chester. Information reaches us that Rau & Co. have removed their dyeing and finishing business from New York City to this place.

—Pennsylvania, Strikersville. Information reaches us that a new blanket factory has been erected in this place.

—Virginia, Alexandria. C. H. Slaught, we are informed, will locate a branch of his Washington ramie plant in this place. He will probably erect a new building.

Mills Starting Up.

—Connecticut, Shelton. We have received information to the effect that the Antelope Lining Co. have started up their works. All the necessary machinery and accessories are ready to commence operation. They will manufacture dress linings.

—Massachusetts, Waltham. The employees of the Waltham Bleachery, about 300 in number, have commenced work on full time. They have been working on 2-3 time for 2 months past.

—The May's Landing Water Power Co., May's Landing, N. J., after thoroughly testing the merits of the revolving flat card made by the Howard & Bullough American Machine Co., Pawtucket, have placed an additional order with them for these machines.

—The selling agency of the products of the Cooper Manufacturing Company, of Bennington, Vt., will remain with the firm of Marsh & Burrell during the coming year. The lines of fine spring needle Derby ribbed underwear, for which the Cooper Manufacturing Company has made a very enviable reputation, have been enlarged. These spring needle goods have proved very popular. The machine is manufactured and controlled by Charles Cooper, of Bennington.

An Intelligent Opinion.

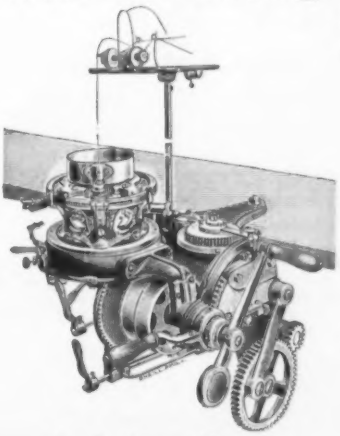
Geo. W. Lord, the well known boiler compound manufacturer of Philadelphia, said recently, that with the election of Mr. McKinley, and the cessation of political agitation concerning our national affairs, this country should start out at once on an era of prosperity. In view of our present tariff, which has made a closer basis of profits generally, he thinks that many industries must be content with smaller margins, but that a livelier demand than we have known for several years may even the status of things.

—P. Blaisdell & Co., manufacturers of machinists' tools, Worcester, Mass., have recently issued their 1896 catalogue. Their line of machinery has an enviable reputation for excellence of design and thoroughness of construction. Blaisdell's lathes are standard. Their upright drills are covered by several patents, and are the invention of Mr. Blaisdell. Among their features of excellence is a patented device for disconnecting the worm from the worm gear, allowing the drill to be returned very rapidly, thus saving a great amount of time in its operation. They build a crank planer also, which is being extensively used, especially on small work. It runs much faster than the ordinary planer, and with a quick return. In point of time and economy of power, it is an economical machine for many kinds of work. The foreign demand for the Blaisdell lathes, planers and drills has led them to appoint as their agents, C. W. Burton, Griffiths & Co., a very prominent English machinery house.

—The Wm. White Textile Machine Co., of Nashua, N. H., have recently issued an illustrated catalogue of the machinery which they build for the preparation and manipulation of wool. Their line embraces wool washing, scouring and drying machinery, cone dusters, cloth extractors, steaming machines, single and double crabbing machines, wool mixing pickers and other machinery. The catalogue is an attractive one, and will doubtless be sent upon application.

—The Knoxville Woolen Mills, Knoxville, Tenn., are now receiving large shipments of machinery from the Howard & Bullough American Machine Co., Pawtucket, who are supplying all of the picking and card room machinery for this new mill.

WHY do Knitting-Machine Builders Try to Produce a Machine to Make a - - -



¼ Automatic.

BRANSON SOCK?

JAS. L. BRANSON,

OF THE BRANSON MACHINE COMPANY,

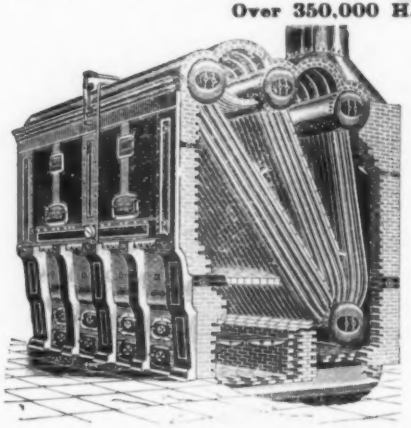
506 St. John St., Philadelphia,

Is the original inventor and manufacturer of this class of Machines, and, like most originators, manages to keep ahead of all imitators.

Send for Circular A.

THE "STIRLING" WATER TUBE STEAM BOILER.

Over 350,000 H. P. in use.



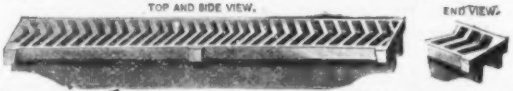
Absolutely safe at high pressure. Not an ounce of cast metal used in its construction. WE CAN PROVE to your entire satisfaction that the "Stirling" will give much higher average economy, with far less expense for repairs, than any boiler on the market to-day, and in proof of our claims we can refer you to some of the largest firms in the Country Please do us the favor to investigate before purchasing elsewhere.

Prices very reasonable. Catalogues, testimonials and complete information promptly furnished.

J. BRADFORD SARGENT,
8 OLIVER STREET,
BOSTON, MASS.

ROGERS PATENT SECTIONAL GRATE

TOP AND SIDE VIEW. END VIEW.



Send for Prices and Descriptive Circulars of this and other Grate Bars.
THE ARCAND GRATE BAR WORKS,
128 LIBERTY STREET, - - NEW YORK.

CHAS. MUNSON BELTING CO.,

STORE AND FACTORY:

116 and 118 North Fourth St.,

PHILADELPHIA.

MANUFACTURE

PURE CHESTNUT OAK

LEATHER BELTS.

SHORTEST LAP BELT MADE.

We guarantee our Belts to give better satisfaction than all other makes

ALL BELTS GUARANTEED.

Represented in all **Principal Cities in the United States.**

Long Distance Telephone, 62-94.

Effect of Jarring upon the Friction of Screw Threads.

PAYSON BURLEIGH.

Everything which is tightened with screw-threaded fastenings is subject to be loosened by every circumstance which causes any movement whatever, between the bearing surfaces of the internal and external threads. If there is any motion at all, of the nut upon the bolt, its irresistible tendency is to loosen the connection.

This tendency, which exists at all times when the cause is in action, is at all times dangerous. It threatens in every kind of a vehicle from a locomotive to a bicycle and is a frequent cause of disaster. It betrays itself in all kinds of machines, where screws are used, from the most formidable to the most familiar. It shows itself in great gun mountings in the steam hammer, in the rock drill, and in the sewing machine. In the machine shop itself, where, if anywhere, there should be found a complete antidote for its evil, there is none which can be used and still retain available the adjusting advantages of the circular inclined plane, which is the essential feature of the screw.

Resort has been made to expedients without number and without reason, to keep screws tightened. Some of these devices are not easily comprehended. A practical working mechanic who was a shrewd observer, noticed one of these singular contrivances and frankly remarked, with a puzzled expression: "I don't know what object there is in putting on a left hand thread; screwing the hub up to a shoulder; staying it with a set nut; cutting the set nut thread of a finer pitch; and then go to work and put in a spline, just to keep the thing from getting loose!"

The combination of good things which he thus enumerated was on a machine designed for a class of customers not specially versed in mechanical appliances, and had been given by the manufacturers, apparently on the same principle that animated the benevolent

OPERATE YOUR MILLS

BY

ELECTRICITY.

First Cost Not Great.
Cost of Maintenance Low.
Great Economy in Operation.
Results Satisfactory.

WATER POWERS UTILIZED

NO MATTER HOW FAR FROM YOUR MILL,
BY OUR SYSTEM OF

TRANSMISSION OF POWER.

Write for Particulars and Estimates,

General Electric Company,

Main Office: SCHNECTADY, N. Y.

SALES OFFICE:

Boston, Mass.
New York, N. Y.
Syracuse, N. Y.
Buffalo, N. Y.
Philadelphia, Pa.
Baltimore, Md.
Pittsburg, Pa.
Atlanta, Ga.
Cincinnati, Ohio.
Columbus, Ohio.
Nashville, Tenn.
Chicago, Ill.
Detroit, Mich.
Omaha, Neb
St. Louis, Mo.
Dallas, Tex.
Helena, Mont.
Denver, Colo.
San Francisco, Cal.
Portland, Ore.

FOREIGN DEPT: { Schenectady, N. Y.
New York Office, 44 Broad

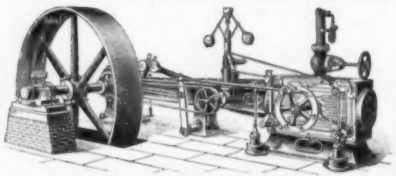
old lady who flooded her pastor's cup of tea with molasses, replying to his objections: "O there's nothing too good for the minister!" They were bound to give the public its money's worth. But let us see further.

When such congeries of mechanical expedients is exhibited, the inference is, that they were tried successively, but not with satisfying success, until the one which proved efficient was reached. In this case, some of the rest might well enough have been abandoned after reaching the spline, for that ended the adjusting business of the circular plane. It ended all the other business of the screw, unless the intention was to make the fixture in its entirety the equivalent of a somewhat modified bayonet fastening, including the modern clasp. If that was the case, it may be pointed out that the difference in the two applications is that in the one, the inclined plane, or screw, is put in action first, and its stay, the spline, is inserted last; while in the bayonet form, the stay, or stud is stationary, and the inclined plane, represented by the clasp, is put in action last, to complete the fastening.

The successful use of a left hand thread on the left hand axles of carriages, to prevent the friction of the wheels from unscrewing the nuts, seems to have scattered a general notion through the nations that if a right hand thread gets loose it is quite the right thing to try one cut left handed. This has led to some strange anomalies in bicycle work. Some manufacturers claim that certain parts have a tendency to unscrew in the direction in which they revolve, while others maintain that the tendency is in a contrary direction. Carrying out their respective opinions, one cuts a left hand thread to prevent the left hand component from unscrewing, and the other cuts a right hand thread to keep the left hand component from unscrewing, and the left hand component keeps right along

Newburgh Ice Machine & Engine Co.,

Successors to WHITEHILL ENGINE & PICTET ICE MACHINE CO.



Office and Works:

NEWBURGH, N. Y.

Manufacturers of

WHITEHILL . . . CORLISS STEAM ENGINES, Simple or Compound for any duty.

PENNEY'S ICE MAKING AND REFRIGERATING MACHINERY, using ammonia and PICTET sulphurous oxide system.

New York Office, Room 44, Taylor Building, 39-41 CORTLANDT ST.

Steam Boilers and Steam Power Equipments, Iron and Brass Castings.

Send forour Descriptive Circulars.

SMEALLIE BROS.

BOILER FEED and TANK PUMPS

In four sizes for Hot or Cold Water.
No. 2 Single, 130 gals. per Hour.
No. 3 Single, 420 gals. per Hour.
No. 3 Double, 840 gals. per Hour.
No. 4 Double, 1680 gals. per Hour.

Strongest and Cheapest Pump in the Market.

Write for Circular and Prices.

24 Livingston St., Amsterdam, N. Y

TRADE
IMPERIAL
MARK.

ESTABLISHED 1876.

BOILER COMPOUNDS

For the Prevention and Removal of Scale in Steam Boilers.

Please mail us specimen of your Boiler Scale, which we will analyze for you FREE OF CHARGE, and prepare a compound for your special case, and guarantee satisfactory results. Send us a postal card and we will call.

IMPERIAL CHEMICAL CO.,

OFFICE AND LABORATORY, - 324 ST. JOHN STREET, PHILADELPHIA, PA.

PL

DIXON'S PERFECT LUBRICATING GRAPHITE.

The most Marvelous Lubricant Known.
Used Dry, or Mixed with Water, Oil or Grease.

NOT AFFECTED BY HEAT, COLD, STEAM OR ACIDS.

An Interesting and Instructive Pamphlet will be sent Free of Charge.

JOS. DIXON CRUCIBLE CO. Jersey City, N. J.

CHRISTIANA MACHINE CO.

Christiana, Pa.

MANUFACTURERS OF

THE BALANCED GATE

TURBINE WHEEL.

Suitable for Light or Heavy Service.

Globe Outer-Cases and Special Wrought or Cast Iron Flumes,

SUITABLE FOR ANY SITUATION.

GEARING of all kinds, **SHAFTING, PULLEYS,** and everything required for complete **POWER PLANT.**

Address, P. O. Box 124A.

BURNHAM'S

New Improved Standard . . . TURBINE . . .

It gives on either a Vertical or Horizontal Shaft more power for its price, yields a greater percentage for water used, either with full or part gate drawn, and is the simplest, most durable and best finished wheel made. Send for new catalogue.

BURNHAM BROS., York, Pa.

WATER WHEELS

MANY SIZES AND STYLES. UPRIGHT AND HORIZONTAL,

adapted to all **POWER PLANTS** for all purposes. Easy working balanced gates. We guarantee most power with smallest quantity of water, at both full and part gates.

ENGINES AND BOILERS

UPRIGHT AND HORIZONTAL.

Write for pamphlet of either, stating your wants.

JAMES LEFFEL & CO., Springfield, Ohio, U. S. A.

LORD'S BOILER COMPOUNDS.

STEAM USERS

I will remove and prevent Boiler-Scales, prevent pitting, and all forms of corrosion, in any steam boiler at very small cost. Send sample of boiler-scale, the size of a quarter, for chemical test made free of cost, which will enable us to compound an article to meet the special requirements of your feed water. Address,

GEO. W. LORD,
Manufacturing Chemist, Philadelphia, Pa.

"BEAUTIES IN ART" pamphlet with full particulars, sent on request.

What Steam Coal Do You Use?

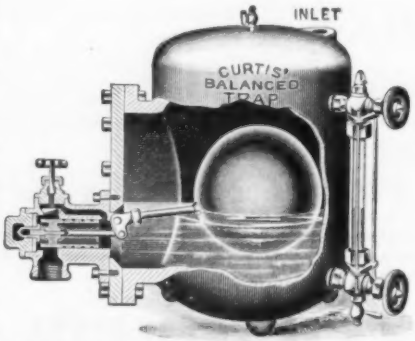
For the purpose of introducing its Steam and Gas Coals to the manufacturers of New England, the Dominion Coal Company (Limited), is prepared to quote prices that will prove satisfactory to consumers.

ADDRESS:

DOMINION COAL CO. Ltd.
95 Milk Street,
BOSTON.

THE CURTIS BALANCED STEAM TRAP.

Combines More Superior Features than Any Other Trap on the Market.



The Valve is tubular balanced and of large area.

The Renewable Seat is in the cap, and both seat and valve can be removed in one minute without starting a joint, bolt or gasket.

The Float is large, hard, round, and warranted against 150 lbs. pressure.

The Trap Outlet is always sealed by two or three inches of water.

THERE ARE NO OTHER TRAPS MADE WHICH POSSESS ALL THESE FEATURES.

Manufactured by the

D'ESTE & SEELEY CO.,

29 to 33 Haverhill St., Boston, Mass.

NEW YORK: 109 Liberty St. CHICAGO: 218 Lake St.

serenely unscrewing, simply to show that neither the one party nor the other is entirely in the wrong. Furthermore, when it is shown that the spline and screw combination stops the unscrewing it teaches that apparently superfluous security is sometimes a real necessity.

Many different kinds of bolt fastenings have been devised to hold the fish plates to rails. The nuts get loose. Why? There is no rotary motion to whirl them forward by action or backward by re-action. What starts them? Why, the jar, of course. This answer is complete, but the information it conveys is not sufficient to enable the inventor to perfect a device which will stop the loosening of the bolts.

Everybody knows that there is more or less jarring on these bolts every time a train passes over the rails, and many think that if there was no jar, there would be no motion, and that the nuts would remain tight forever; but the man who seriously sets out to stop this gradual process of getting loose must investigate the steps of the process. Why should not the jar cause the nut to get tight? Why should it not cause it to turn to the right, on a right hand screw thread, and to the left on a left hand screw thread? Why should it always turn in a contrary direction to the lead of the thread so that the nut always loosens and never tightens?

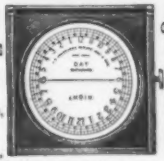
It does not take long to discover that the nut will go where it can go, like a wheat beard which can only crawl one way. The greater resistance which must be overcome to make the nut turn in the way which would tighten it, is as the click, or pawl, of a ratchet wheel, which prevents the wheel from turning in one direction, while it leaves it free to turn in the opposite direction. Every time the nut gets any motion whatever, it moves in one direction. It retreats. The movement accelerates. Every motion it gets generates greater ease of motion and adds to the distance it has moved.

PASSENGER AND FREIGHT ELEVATORS
THE GRAVES ELEVATOR CO.
53 STATE STREET, BOSTON.
92-94 LIBERTY ST., NEW YORK.
HODGES BUILDING, DETROIT.
ROCHESTER, N.Y.
2500 IN USE

McCALVEY ELEVATOR WORKS,
Improved Steam, Electric and Hand Power
ELEVATORS
C. F. TAYLOR, Manager.
602 604 Cherry St. PHILADELPHIA.

SALEM Foundry & Machine Shop
ELEVATORS
Salem, Mass.
Boston Office, 62 Chauncey St.

ELEVATORS. Hoists Waiters for any place, capacity or weight. Electric, Steam, Hydraulic or Manual Motors. Shafting, Pumps, Boilers, Pipe, Rope, Drug and Paint Mills, Presses, Gearing, Mining and Coining Machinery, Street and Road Making and Sweeping Machinery.
GEO. C. HOWARD, 1783 Barker St., Phila., Pa.

Headquarters FOR ELECTRIC & PORTABLE Watchman's Clocks
Lowest Prices. Latest Improvements. Patents 1886-1893. Send for Circular.
E. O. HAUSBURG, 41 Maiden Lane, New York.

THE "ALERT."
Price, Complete $10.00

Endorsed by Board of Fire Underwriters.
SUPERIOR TO COTTON WASTE.
Safe, Durable and Cheaper.
RAW SILK MACHINERY WIPERS.
AMERICAN SILK MFG. CO.,
311 Walnut St., PHILA., PA.
Endorsed at the recent meeting of N. E. Cotton Mfrs.

TO AVOID LOSS

NEVER SEND MONEY IN LETTERS, BY MAIL.

ALWAYS

GET AN AMERICAN EXPRESS MONEY ORDER.

RATES LOWER AND SYSTEM SAFER THAN ANY OTHER METHOD.

DO NOT CARRY MONEY WHEN TRAVELING.

IT IS ENTIRELY UNNECESSARY IF YOU TAKE

THE **TRAVELERS CHEQUES**

OF THE **AMERICAN EXPRESS COMPANY.**

The nut, when it is set jarring by the passing cars, may turn around only the ten millionth part of a degree at each infinitesimal vibration, but the vibration in a jarring are so multitudinous that it may turn a hundreth, or a thousandth of a degree at the first jarring and in a few months it may have jarrings enough to ture it half way around. By that time it may have become loosened so much that it will not be at all trustworthy. Whenever a train passes over, it will be liable to turn to an appreciable extent. The remedy for this is to examine their condition regularly and tighten the loose nuts. Although thousands of dollars have been expended by the railroads to obviate this difficulty and guard against displaced rails, yet so far as has been discovered, eternal vigilance and eternal replacement in the price of safety.

Besides the loosening consequent upon mechanical action, there is also a relaxation which is induced by variations in the temperature in all the parts in the system, separately and conjointly. There is the absolute and relative difference in the expansion and contraction of the thickness of the fish plates and rails, in the length of the body of the bolt, and in the diameter of the nut and of the body and head of the bolt. These differences are all productive of motion, and are by no means insignificant. They unfix the grip which the friction bearing surface of the inner, or female thread, has upon the outer thread. It is the gripping of the little filaments, rises and indentions, hills and hollows, between these two surfaces, which has to be depended upon to keep the nuts from turning, and when the grip is at all relaxed, the nuts will turn, and always in the direction to relieve the strain. They will turn to an easier position, whether it is to the left or right.

A useful practical derivation from the study of the relaxation of the stains produced by screws, and of the loosening of bolts, may be of use when it is desirable to loosen a threaded piece which, in the effort to unscrew it, resists the greatest endurable stress of the material in either direction. This task may be accomplished by alternating the stress repeatedly, for there is the strongest probability that, if this course is continued, the effect which at first was imperceptible, will after a while manifest itself, and the effort will result successfully. Great aid may be obtained by attention to the changes produced by thermal conditions.—[Age of Steel.

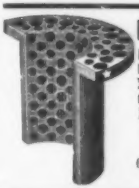
—The Holyoke Machine Co. is one of a few concerns that has been blessed with brisk business through the summer and fall. One day in September it made a single shipment occupying more than a score of railroad cars.

Hahn's Latest Improved **Wa'chman's Time Detector.**

This clock is adapted to six or twelve stations and the keys are all different. A liberal allowance made for old detectors. For circulars, prices and further information address,

NANZ & CO.,
116 A Chambers Street,
NEW YORK.

THE DANFORTH BELTING CO.,
Manufacturers of
BELTING,
Aprons for Worsted Machinery, Roller Covers and Lace Leather.
221 Chestnut St., Philadelphia, Pa.



Metalline Oilless Bearings
For Loose Pulleys and other bearings. Perfectly clean. No cutting or danger of fire from overheating. Send for Loose Pulley circular No. 5.
North American Metaline Co.
62 W. Av. cor. 3d St. Long Island City, N. Y.

THE WEEKLY EDITION OF
SHELDON'S SPECIAL REPORTS
is the most **Authentic Record** of the **important business changes constantly** transpiring. Manufacturers should take it and use its columns for their announcements of new goods etc. **Terms $2 per annum.** J. D. SHELDON & Co., Publishers, 54 Franklin Street, New York.

ALEXANDER BROS.
BEST OAK BELTING.
PHILADELPHIA.

Capital,
$1,200,000.

100,000 SPINDLES.
Weekly Product 120,000 lbs.
14's to 160's.

HIGH GRADE

Cotton Yarns,

SPECIALLY ADAPTED FOR

Silk, Plush, Upholstery & Hosiery

MANUFACTURERS.

American Peelers. Sea Island. Egyptian Cottons.

Superior Qualities Combed and Carded—Furnished in singles, 2, 3, 4 and 6-ply chain warps, skeins, beams, spools, tubes, cones and Lisle Thread yarns.

Cops for Weaving and Twisting. Cops for Hosiery.

GLOBE YARN MILLS,

Fall River, Mass.

E. B. JENNINGS, . . Treasurer.

Arnold B. Sanford, *Pres.* Arthur H. Mason, *Treas*
Capital Stock, $500,000.

Sanford Spinning Co

FALL RIVER, MASS.

30,000 Spindles. Weekly product, 50,000 pounds 14s to 40s.

NOVELTY COTTON YARNS,

FROM AMERICAN PEELERS AND EGYPTIAN COTTONS.

OUR SPECIALTY: Superior qualities of Hosiery Yarns, Natural Shades of Cottons, and in Colors, Jaegers, Mixes, and Bleached, Hosiery Cops on Long Tubes, Skeins, Tubes, Cones and Lisle Thread Yarns. Furnished in Carded and Combed Qualities in Singles, 2, 3 and 4-plies.

YARN DEPARTMENT.

The Eastern Yarn Market.

White Cop Yarn, Double and Single Roving. Spinners have been getting few orders, but now that McKinley is elected, the orders for knit goods ought to come in. Manufacturers are ready for business and a revival of trade is to be the immediate result, as buyers in the West have been holding off from placing orders as they did not care to take chances. Orders will be placed and salesmen are after them. It is stated by some of the leading railroads that more commercial baggage is being handled now than any time since the bad times started in. There will be a late demand for heavy weight garments.

The demand for next season's heavy weights is going to be on white cop yarn and carded Egyptian. Since last June the knitting business has practically been at a stand still. Large commission houses have not paid expenses and the spinners have lost large sums of money. The sales of some of the yarn houses have been reduced to a very small figure. That is why we maintain that now that the financial scare is over, jobbers and buyers must replenish stocks and orders for immediate consumption will be placed.

Some of the knitters have been reducing wages in an endeavor to get orders and in some instance the operatives wanted more pay. We believe the operatives will have the best of it at this time, as the mill must surely run after the long dull period.

Buyers of yarn for light weight garments have placed no orders as yet. Some seem to think that the light weight season will not amount to much. This election of McKinley is the best thing that has happened the country for years. Prices will advance; stocks are low and every one is ready for business.

Egyptian Combed. Buyers are still trying to force prices lower and knitters are refusing to make garments at the prices offered. This is especially true on the light weight business. Knitters many of them are not getting out samples. Buyers asks what they are going to do. They are told to get the garments of some manufacturer who is anxious to sell for 25 or 50 cents less per dozen than what the garment can be made for.

Spinners are asking from 2 to 3 cents per pound more for Egyptian yarn. They say they have to get it, that the knitters have been having a good time with the low prices; now they, the spinners, propose to get something out of it. Contracts already placed are not being taken on time. Trade is very backward, and the light weight season may prove a failure, but is impossible to predict on this at this time

Woolen Yarn. Weavers have been trying to place orders, but spinners have not dared to accept, which was wise on their part as the election of McKinley has already advanced the price of wool and it is going higher. Wool dealers have been fighting off buyers, as they want now to sell at the advance which they surely will get. Most of the business done so far is speculative, as manufacturers have not as yet received orders to any amount from the consumers who have been waiting for the election, and many have been unable to speculate who would have speculated had money been in an

Frank E. Patterson, Prest. Oscar W. Wood, Treas

GERMANTOWN SPINNING COMPANY INCORPORATED GERMANTOWN JAN. 9TH 1890

Germantown Spinning Co.

COTTON CARDED

HOSIERY YARNS

In numbers from 6s to 26s.

Germantown, Philadelphia.

EGYPTIAN COTTON

HERMAN CAPELLE,
Rothschild Building, Cor. Leonard St. & W. Broadway
NEW YORK.
H. BINDERNAGEL Alexandria, Egypt.

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. E. J. CARRIGAN, Sec.
Established 1860.—Incorporated 1893.

THE S. BLAISDELL JR., CO.,

Egyptian COTTON Peruvian

American Long Staple a Specialty. and all American Southern points.

Shipments direct to mill form Egypt, Peru
CHICOPEE, MASS.

Established 1865.

H. M. WITTER & COMPANY,

Manufacturers of

COTTON WEBBING, TAPES AND BINDINGS,

Worcester, Mass.

W. WARREN THREAD WORKS,

Manufacturers and Importers of

Polished Threads and Cotton Yarns,
WESTFIELD, MASS.

Colored Yarns and Threads on cones a specialty. We manufacture spool cotton, sewing thread, button-hole cord and seaming thread put up in any form to suit the trade. Samples sent upon application and correspondence solicited.

Our Bleaching and Dyeing facilities are New and Unsurpassed.

WEAVING and HOSIERY YARNS.

We Buy for Cash

WARPS, COPS, TWIST and SOFT SKEINS, Single, Double, 3-ply, 4-ply, etc.

COLORED YARNS for HOSIERY

on Cones, a Specialty.

Correspondence Solicited.

EDWARD S. HYDE, 223 and 225 Chestnut Street, PHILADELPHIA PA.

easy position. We look within the next two weeks for a marked revival of business.

Worsted Yarn. Orders have been placed for future delivery. Some of the deliveries are as far ahead as February and March. Spinners have withdrawn samples, and are not inclined to offer yarn until it is seen how wool will act. All seem to think that the last man to take orders will get the best prices. Whether this is really a good policy to work on is questioned, as weavers when once covered require no yarn until another season. All grades of yarn have been selling by those manufacturers who have cared to take orders, in sizes from 2/50s fine Australian. We hear much complaint of the strength of 50s used for weaving. Manufacturers say that prices have been so low that spinners have been useing 40s stock to make 50s yarn. The astrachan trade seems to have revived within the last few weeks, and it is now predicted that lustre yarn will run well another season. Cloakmakers started in so late to manufacture cloaks that all the stock of astrachans carried by the mills were immediately bought up. The season is so far advanced that manufacturers cannot hope to run much longer on the work, and must wait for next season. Manufacturing weavers are all in New York at this writing getting orders, and inside of one or two weeks orders will come in from all sides, and business will be better than it has been for some time. If spinners advance prices too much, some of this weaving business will go to Europe. If spinners are moderate we expect to see all the machinery running, and with a new tariff law the country will again be in a prosperous condition.

Prices might be fairly quoted at from 10 per cent. to 20 per cent. higher than the following list, but as little business has been done since election at time of writing, it is difficult to establish exact quotations. Spinners are firm, and not disposed to make concessions to close trades.

SAWYER, MANNING & CO.,
YARNS,
86 & 88 Franklin St., NEW YORK.

O. H. SAMPSON & CO,
YARNS,
BOSTON, 67 Chauncy St.
NEW YORK, 58 & 60 Worth St.
PHILA. 206 Chestnut St.

J. H. LANE & CO.,
Commission Merchants.
COTTON and JUTE YARNS
110 Worth St., NEW YORK.
24 Kingston St., BOSTON.
151-53 Fifth Ave., CHICAGO.

ALEX'R KING & CO.
YARNS.
FINE IMPORTED YARNS A SPECIALTY.
54 Leonard St., New York.

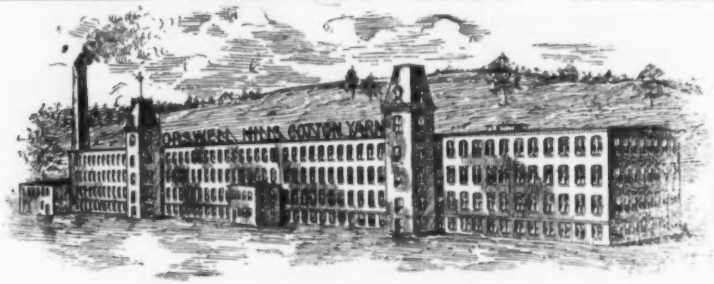
JAMES E. MITCHELL & CO.,
Commission Merchants.
122 & 124 Chestnut St., Philadelpia, Pa.
51 & 53 Summer St., Boston.
Cotton, Woolen & Worsted Yarns.
All numbers on Hand and Made to Order.

O. S. HAWES & BRO.,
WEAVING and HOSIERY YARNS,
All Plies and Numbers.
Imported Yarns a Specialty.
82 and 84 BEDFORD ST., FALL RIVER, MASS.

GRANT YARN CO.,
COMBED AND CARDED COTTON
YARNS 40s and above. AND
FITCHBURG, MASS. WARPS

TRENTON WORSTED MILLS,
Trenton, N. J.
Manufacturers of
All Numbers of Worsted Yarns.
Knitting and Floss Yarns a Specialty.
A. FOSTER, Superintendent.

CAPACITY, 50,000 Spindles. **ORSWELL MILLS** FITCHBURG MASS.



COMBED OR CARDED
COTTON YARNS
In Chains and Skeins, on Balls, Beams, Spools—single or twisted.

GREENE & DANIELS MFG. CO.,
COMBED, CARDED AND GASSED
Yarns, Threads, Twines and Chain Warps,
Colored and Bleached Yarns Furnished in any manner desired by the trade. **PAWTUCKET, R.I.**

Cotton Yarns AND **WARPS** Of Every Description.
James F. White & Co. COMMISSION MERCHANTS, 54 an 56 Worth St., NEW YORK. 228 Chestnut St., PHILADELPHIA.
BURLAPS all WIDTHS and WEIGHTS.

EICHMANN & STERNBERG
488-492 Broadway, NEW YORK.
FANCY WORSTED And COTTON **YARN**
Harness Twines.
Spun Silks. Embroidery Silks.

WOOLEN AND MERINO YARNS. Special line for Bicycle and Golf Goods in all shades For Hosiery, Gloves, Underwear, and all kinds Knit Goods. Cop, Cone and Skeins.
The J. & H. Clasgens Co.
New Richmond, O.

Cotton Warps. WHITTIER COTTON MILLS, LOWELL, MASS.

MONUMENT MILLS,
Manufacturers of
White, Colored, Fancy and Double and Twist, **COTTON WARPS**
HOUSATONIC, MASS. 4s to 60s.

MALLISON ROPE WORKS, - ESTABLISHED 1827.
JOHN M. HODSON,
Single and Double Loop Bands for WORSTED and COTTON SPINNING.
ROPE, TWINES AND COTTON BANDINGS.
MANAYUNK, - PHILADELPHIA.

DOUBLE ROVING WHITE COP YARN.

11s and 12s	14 cts.
16s	15 cts.
20s	18 cts.

Jaeger and Camel's Hair.

10s to 12s	16 cts.

Cones 1 cent extra.

Other colors quoted on application.

Egyptian Combed.

1/10s to 12s	27 cts.
1/20s	28 cts.
1/34s	31 cts.
1/40s	32 cts.
1/45s to 1/50s	37 cts.

Cones extra price.

ALLEN SEED COMBED.

1/10s	24 cts.
1/40s	32 cts.
2/40s	37 cts.

Carded Egyptian.

1/20s	21¾ cts.

WORSTED YARN.

Fine Australian.

2/40s	70 cts.

Other numbers in proportion.

2/50s	75 cts.

Half-blood domestic.

2/40s	65-68 cts.

DOMESTIC.

1/4 Blood,

2/28s, 24s, 18s	48 cts.
2/32s	50 cts.

3/8 Blood,

2/32s	55 cts.
2/28s, 24s	55 cts.

1/2 Blood,

2/22s, 28s	47 cts.

WOOLEN YARN.

Will quote on inquiry, as there is too great diversity to give satisfactory quotation.

The Philadelphia Yarn Market.

Prices have been about stationary the past month. There have been some few weak spots developed, but there have been other yarns that have been held for firmer prices.

All of our spinners refused orders for several weeks prior to election, which would extend for any time after election. There has been so little time elapsed since the returns have been known that we cannot chronicle any particular change in the market, beyond a general feeling of confidence and firmness.

KERR THREAD CO.
—SPINNERS OF—
Fine Combed Sea Island **COP SINGLES**
All Numbers, 30s to 150s.
Fall River, Mass.

J. D. KENNEDY, Lessee
North Athens Cotton Mills,
Manufacturer of
COTTON WARPS AND YARNS
in numbers from 4s to 14s.
ATHENS, - - TENN.

ABEGG & RUSCH,
WORSTED YARNS
Dry Spun, Nos. 36s to 100s.
COTTON YARNS
Nos. 12s to 120s.
92 GRAND ST., NEW YORK.

WOOLEN YARNS.
All grades Woolen, Mixed and Merino yarns.
15 SETS CARDS.
EDWARD M. ROCKWELL,
LEOMINSTER, - MASS.

A. HERBST. J. W. JONES.
HERBST & JONES,
Successors to Kershaw Worsted Co.
WORSTED YARN SPINNERS,
21st & Naudain Streets,
PHILADELPHIA.

TUCKER & COOK MFG. CO
MANUFACTURERS OF
WHITE AND COLORED COTTON **WARPS**
Nos. 6s to 30s,
On Beams, Jack Spools or in Chain
CONWAY, MASS.

YARNS All Numbers and Qualities.
HOLLAND & WEBB,
478 Broadway, New York.

—THE ONLY—
AUTOMATIC BANDING MACHINE
in the world for making loop bands.
Saving **50 per cent.** in cost of making bands, besides giving a superior quality to those made on hand machines.
For particulars address,
COLE BROTHERS, Pawtucket, R. I.

HADLEY
SPOOL COTTON AND FINE YARNS
COMPANY
COTTON SPINNERS.
MILLS AT HOLYOKE, MASS.

SPINNERS OF
FINE COTTON YARNS
30s TO 100s.
Gray, Bleached, or Colored. On cop, in skein on spools, cones or tubes.
Fine Cotton Warps, single and two-ply, in chain, etc.
95 Milk Street, BOSTON.

THE WILLIAM CLARK COMPANY,
WESTERLY, R. I.
Mills equipped with the latest and most improved machinery.
Combed Egyptian from No. 20s to 100s. Combed Sea Island from No. 40s to 200s.
Also 2, 3, 4, 5 ply and 6, 9 and 12 plv cable laid.
Hosiery Yarns on Cops Tubes or in Skeins, Grey, Bleached or Dyed. (Fast Colors.

The J. R. Montgomery Co.,
WINDSOR LOCKS, CONN.,
MANUFACTURE
LOOP OR BOUCLE YARNS, in Mohair and Worsteds.
COTTON SPIRAL OR LENO YARNS, to give leno effects with plain weave.
COTTON FLAKE OR KNOP YARNS for new effect in Cotton dress goods.
HIGH GRADE COTTON WARPS.
Also printers of Cotton, Wool or Silk Yarns.

MALCOLM MILLS CO.,
MANUFACTURERS OF
Novelty Yarns, Silk Noil Yarns, in Fast Colors AND White.
Mills, Frankford, Pa. Office, 229 CHESTNUT ST., PHILA.

GEO. FELL & SON,
LEATHER MANUFACTURERS,
Bolton, England.
SPECIALTY:
ROLLER SKINS
PERSIAN, FOR EGYPTIAN AND SEA ISLAND COTTON YARNS AND FINE COUNTS
WELSH, FOR AMERICAN COTTON YARNS AND COARSE COUNTS.
Cable and Telegraphic Address,
"PELICAN BOLTON"
AI Code Used.
REGISTERED TRADE MARK
GEORGE FELL & SON
BOLTON
LANCASHIRE
REGISTERED TRADE MARK

In the latter part of election week, some yarns were sold at full prices, which buyers would not pay two weeks previously. Spinners are generally waiting to see what the effect will be, but there has not been any large movement of yarns as yet, so no immediate effect can be chronicled. Spinners will certainly not cut prices at all, and will try for an advance, which will, however, largely depend upon the condition of the cotton market.

One of the greatest benefits to be derived from the election is in the fact that the banks all over the country will now be more liberal with their customers, and by giving credit, will enable business to be conducted with more freedom. Many people who drew their deposits just before election have put them back now. This will give people who were on the verge of failure a chance to go on and do business and buy goods. It ought to stiffen up the market.

CHAS. J. WEBB & CO.,
Foreign and Domestic
WOOL, HAIR and NOILS,
142, 144 & 152 to 156 N. Front St.,
PHILADELPHIA PA.

JAMES E. DALY,
SUCCESSOR TO
Johnson Extract Wool Co.
PATERSON, N. J.
P. O. BOX 250.
Fancy Colors in Wool Extracts a Specialty.

KILBURN, LINCOLN & CO.,
Manufacturers of
COTTON LOOMS,
TURBINE WATER WHEELS,
Shafting, Gearing, Calenders, Manglers, Hydraulic Presses, Machinists' Tools, Steam Engines, Pipe, Heavy Castings, and Machinery generally.
FALL RIVER, MASS.

FOWLES & CO.,
Importers and Dealers
WOOLS, NOILS, HAIR,
Shoddies, Waste, Flocks, Etc.
106 Church St., Philadelphia.

C. MOORE & CO.,
MANUFACTURERS OF
TWINES, THREADS AND YARNS.
Jacquard Harness Twines of all kinds on hand and made to order.
S.W. COR. FIFTH & MARKET STS.,
Philadelphia.

THE WILMINGTON MILLS MFG. CO.
MANUFACTURERS OF **JUTE GOODS,**
CARPET FILLING AND RUG YARNS,
Wrapping, Baling, Tobacco, Hop and Wool Twines. Cords, Ropes, Packing and Specialties
WILMINGTON, DEL.

GERRISH WOOL & LEATHER CO.,
Manufactuers of
Calf, Sheep and and Lamb
ROLLER LEATHER,
Manchester, - New Hampshire.

THEO. A. DUROSS, Wool Sorter and Scourer.
Having doubled my former capacity, I am now prepared to scour the largest lots in the quickest possible time. Especial attention given to western shippers. All wools covered by insurance while in my possession I deliver wool free of charge in Philadelphia. Immediate returns made on sample tests. All wools dried by cold air draft. Best of References. Correspondence solicited.
Kensington Ave. and Huntingdon St., - PHILADELPHIA, PA.
Represented by S. MARTIN HENRY.

HOWLAND CROFT, SONS & CO.

LINDEN WORSTED MILLS.

Fine Worsted Yarns

OFFICE AND MILLS:
Broadway and Jefferson Avenue,
CAMDEN, NEW JERSEY.

ALLEGHENY WORSTED MILLS,

Thomas Wolstenholme, Sons & Co., MANFRS. OF

ALL NUMBERS SINGLE AND TWO-PLY,

Worsted YARNS,

Sell Direct,

on Cop or in Skein, for Weaving and Knitting Purposes, in White, Natural & Fancy Mixes
Office and Mills: Frankford Ave and Westmoreland St, Phila, Pa.

The Competition of Foreign Goods

On staple and plain fabrics under present tariff conditions makes it almost impossible to make any money, and the only hope of profit in making Dress Goods, Cloakings and Cassimeres seems to be in using

MOHAIR OR NOVELTY YARNS.

In the United States we are the only manufacturers from raw materials to finished product who make such yarns ONLY.
Perhaps we can be of use to you.

CRANSTON WORSTED MILLS, Bristol, R. I.

George Campbell & Co.

Worsted Spinners.

Yarns, both French System and Bradford.

Knitting Yarns in all Grades and Mixes.
All Numbers to 60s.

21ST STREET AND WASHINGTON AVENUE, PHILADELPHIA.

RIVER SPINNING COMPANY,

WOONSOCKET, R. I.

Belgian System WOOLEN and MERINO **Yarns.**

In any shade or quality suitable for making any class of Goods, domestic or foreign at prices to insure competition with imported goods of any description.

Selling Agents: JOHNSON & FARIE. Apply to Andrew Adie, 570 Bourse Building, Philadelphia.

There have been plenty of orders offered, and at figures prevailing a month ago, or at slight advance, which have been refused by spinners, when the orders were large enough to extend over several months. The following prices are about the market to-day:

WARPS.

20/1 to 22/1	13⅛ to 14 cts.
26/1	14¼ cts.
12/2	13½ to 14 cts.
14/2	13½ to 14 cts.
30/2 Southern	17½ to 18 cts.
30/1 Southern	15½ to 16½ cts.
30/1 Eastern	18½ to 19½ cts.
14/1	13 cts.
16/1	13 to 13¼ cts.
26/1	13½ to 14 cts.
20/1 soft	13½ cts.
19/1 soft	13½ cts.
4s to 10s soft	13 to 13¼ cts.
10s to 12s hard	12½ to 13 cts.
12s soft	13 to 13½ cts.
14s soft	13 to 13¼ cts.
20/2 medium	14½ cts.
16/1 soft	13½ cts.
14/2 hard	13 cts.

SOUTHERN CONES.

6s to 8s	13 to 13½ cts.
10s	13 to 13½ cts.
12s	13½ cts.
14s	13½ to 14 cts.
16s	14½ cts.
20s	16 to 16½ cts.
24s	16½ cts.
26s	16½ to 17 cts.

SOUTHERN COPS.

6s to 8s	13 to 13½ cts.
10s	13 to 13½ cts.
12s	13½ to 14 cts.
16s	14 to 14½ cts.
10s to 12s shuttle	13½ to 14 cts.
6s to 8s	13 to 13½ cts.

MIXED COLORED CONES.

6s to 8s	15 to 15½ cts.
10s	15 to 15½ cts.
12s	15½ to 16½ cts.
14s	17 to 17½ cts.

(Continued on page 127.)

SILK NOILS AND SILK NOIL YARNS
IN WHITE AND COLORS.
MOHAIR LOOPS, KNOTS, AND FANCY YARNS FOR DRESS GOODS AND CLOAKINGS.
A. T. SKERRY & CO. 42 LEONARD ST., NEW YORK.

LARGEST IN THE WORLD. ESTABLISHED IN 1870.

THE F. MUHLHAUSER CO.

FINE SHODDIES, CAPACITY: 10,000,000 lbs. per Annum

Rings, Threads, Botany Yarns, Etc.

BRANCH OFFICES: 143 Federal Street, Boston. 7-9 Grand Street, Troy, N. Y. 34 No. Front Street, Philadelphia, Pa.

CLEVELAND, OHIO.

CHENEY BROTHERS,

SILK MANUFACTURERS.

ALL KINDS OF

Knitting Silks, Ribbons AND Piece Silks

USED FOR TRIMMING KNIT GOODS.

TRAMS, ORGANZINES and SPUN SILKS, in the Hank, or on Spools or Cones, for Manufacturers' Use. Silks for Special Purposes Made to Order.

MILLS: South Manchester and Hartford, Conn.

SALESROOMS: 477, 479, and 481 Broome Street, NEW YORK.
79 Chauncey Street, BOSTON.
186 Franklin Street, CHICAGO

WILLIAM RYLE & CO.,

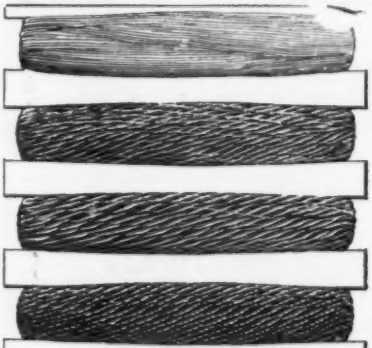
DEALERS IN

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Foreign and domestic

SPUN SILK YARNS AND NOILS

Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., - NEW YORK.



TRADE SILK-LOUR MARK
PATENTED

SILK LOUR
Novelty and Nib Yarns

Patented.

Manufactured from PURE SILK ONLY. With the Lustre and Staple preserved.

Made under an Improved Process exclusively our own. Prices fully 50 per cent lower than any silk yarns made by other process.

The Silk Lour Mfg. Co.

Office and Mills:

Putnam and Mascher Sts., PHILADELPHIA.

Hosiery AND Weaving Yarn

ALBERT IVINS CROLL,
BOSTON

YARNS

SOLIS - - BOSTON.

179 Devonshire Street.

ANDREW J. SOLIS, Jr. & CO.

Boston Finishing Works

WILLIAMSTOWN, MASS.

BLEACHERS, DYERS AND FINISHERS

Of Pure Finish Shirtings, Sheetings, Canton Flannels and Filled Goods. Also Silesias, Satteens, Corset Jeans, Cambrics, Sleeve Linings, Pocketings, Flannelette, and all descriptions of Dyed Goods.

NAPPING A SPECIALTY.

Being equipped with the French and other Foreign and Domestic Napping Machines, we are prepared to give any kind of Nap required, including the French FlannelFinish.

R. GREENWOOD & BAULT,

GLOBE DYE AND BLEACH WORKS,

FRANKFORD, - PHILADELPHIA.

Specialists in Cotton Warps and Skein Dyeing.

BAY STATE DYEING AND FINISHING CO.,

Yarn and Piece Dyeing a Specialty.

NORTH ANDOVER, DEPOT, - - MASS.

M. B. SCHWAB, Pres. D. W. SCHWAB, Sec.
H. RAWITSER, Treas. ED. GLUECK, Gen. Mgr.

Riverdale Woolen Co.,

MANUFACTURERS OF

SHODDIES

OF EVERY DESCRIPTION.

Capacity 7,000,000 pounds per annum.

Custom Carbonizing and Garnetting a Specialty.

RIVERDALE, NORTHBRIDGE, - MASS.

New York Office: 140 Duane Street.

FAST FANCY COLORS.

We make a specialty of dyeing **Mode** and **Tan** shade on hosiery and yarns, as also all other fancy shades. **Colors absolutely fast.** For particulars address

OAKDALE DYE WORKS,

913 W. York St., Philadelphia, Pa.

Write for the Lowest Prices for

HIGH CLASS WORK.

T. BROPHY,

DYER of all kinds of **YARN** and **COTION WARPS.**

Kensington Dye Works. Jasper St. above Clearfield,

PHILADELPHIA.

HOME BLEACH AND DYE WORKS,

PETER B. McMANUS, Proprietor.

Dyers and Bleachers of Cotton Yarns,

PAWTUCKET, R. I.

Pawtucket Dyeing & Bleaching Co.,

BLEACHERS AND DYERS OF

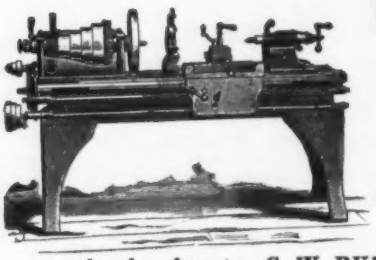
COTTON & COTTON YARNS, STOCKINET & JERSEY CLOTH.

OFFICE WITH **BLODGETT & ORSWELL CO., Manufacturers of Glazed Yarns,**

E. G. BLODGETT, Prest. **PAWTUCKET, R. I.** E. W. ORSWELL, Treas

P. BLAISDELL & CO.,

Manufacturers of



MACHINISTS' TOOLS,

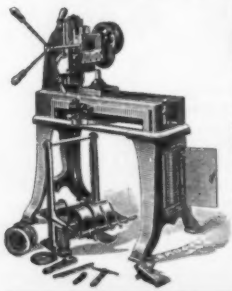
Blaisdell's Patent Upright Drills,
with Quick Return Motion.

ENGINE LATHES, PLANERS,
Boring Mills, Gear Cutters, and Hand Lathes

WORCESTER, MASS.

London Agents: C. W. BURTON, GRIFFITHS & CO.

MODERATE PRICED



Gear Cutting Machine.

E specially adapted for use in Repair Shops. Now in use in nearly **ONE HUNDRED** representative mills, including **Twelve** in Fall River, Mass. On application, we shall be glad to submit full particulars, prices, and photographs of latest improvements. Send for our Sheet of References.

THE D. E. WHITON MACHINE CO.,

19 Oak Street, New London, Conn.

WHITINSVILLE SPINNING RING CO.
ESTABLISHED 1873.
WHITINSVILLE, MASS. U.S.A.
OUR PATENTED SPECIALTIES.
DOUBLE RIBBED RINGS U.S. STANDARD. TRAVELER CLEARERS. METALIC BURNISH LIKE THAT PRODUCED BY THE TRAVELER.

Cohoes Foundry and Machine Co.

BUILDERS OF

SLASHERS,

ELEVATORS,

WATER WHEEL GOVERNORS, SHELL ROLLS.

General Foundry and Machine Work, Repairing

COHOES, NEW YORK.

MILL NEWS.

Cotton.

New Mills.

—Canada, Ottawa. It is stated that C. T. Grantham, formerly of the Yarmouth Duck & Yarn Co., is the principal in the negotiations now under way concerning the building of a cotton mill in Ottawa.

—*Georgia, Athens. Some time ago we reported that Messrs. J. J. C. McMahon, James Carruthers and W. S. Hollman contemplated the erection of a cotton mill in this place. We are now informed that steps are being taken to commence operations at an early date. We understand that these gentlemen propose to erect a plant to cost $150,000, to be operated by electricity, which will be generated at the new plant of the Athens Electric St. R. R. Co.

—*Massachusetts, Chelsea. We are informed that the new webb factory being erected in Chelsea is for the Martin Brothers Mfg. Co., who will occupy the same when completed.

—South Carolina, Bennettville. The Marlboro Mill Co. is making preparation to erect a small cotton mill of about 3000 spindle capacity. At present this company is operating a cotton-seed oil mill at this place.

—*South Carolina, Walterboro. The main building of the Colleton Cotton Mills Co. is nearly completed. It is thought that by January 1st the work will be far enough advanced to allow the placing of the new machinery.

—Tennessee, Raleigh. B. J. Griffin will probably build a new cotton batting mill.

Mills Starting Up.

—Alabama, Birmingham. After a cessation of several weeks, the Birmingham Cotton Mill is again running full time.

—Alabama, Union Springs. The Union Springs Cotton Mill has been started up with a good prospect of continuing operations for some time to come.

—Connecticut, East Killingly. John L. Ross has resumed operations in his Chestnut Hill mill.

—Connecticut, Middletown. Work has been resumed in the weaving department of the Arrawanna Mills, after a long vacation.

—Delaware, Wilmington. After a shut down of two months, the Arlington Mills are once more being operated in full.

—*Georgia, Augusta. A dispatch states that the King Mfg. Co. have decided to start their mills at an early date. These mills shut down last July in order that needed repairs in the machinery may be made, and also that they might increase their number of water wheels, work which is now nearly accomplished.

—*Georgia, Columbus. Number 1 mill of the Eagle & Phenix Co. has resumed work, giving employment to about 300 people. It is expected that the mills will resume in full at an early date.

—Maine, Lewiston. The Androscoggin Mills, which for some time have been running on two-third time, are now running full time, with a full force,

—Massachusetts, Chicopee. The Dwight Mfg. Co. has resumed operations in full in all their mills.

—*Massachusetts, Methuen. With the exception of the weaving department, the Methuen Mills are now in full operation, and as soon as possible the looms will be started up.

—Massachusetts, Palmer. The working time has been increased to 50 hours per week in the mills of the Thorndyke Mfg. Co.

—*Massachusetts, Taunton. The new Corr Mill it is now thought will begin operations the first of November.

—Massachusetts, Ware. After a shut down of two weeks the mills of the Otis Co have been started up.

—New Hampshire, Peterboro. The Union Cotton Mills have resumed operations in full.

—New Hampshire, Wilton. The Amidon Cotton Mills, which have been closed down for several months, are resuming operations in several departments.

—New Jersey, Gloucester City. It is reported that the Gloucester Print Works are resuming operations.

—New Jersey, Gloucester City. The Argo Mills, which have been shut down for some time, undergoing repairs, have been started up on full time.

—*New York, Patchouge. The Patchouge Mfg. Co. have completed their new bleaching and finishing plant, and operations will be resumed in the same immediately, and other departments of the mill will soon be running full time.

—New York, Utica. The Mohawk Valley Cotton Mills which have been idle since May last will resume operations Monday next.

—New York, Utica. The Utica Steam Cotton Mills will resume operations on Nov. 9th.

—*North Carolina, Bessemer. The Southern Cotton Mill Co.'s new mill has started up on full time.

—North Carolina, Charlotte. The Victor Cotton Mills will soon be in operation once more. They have been closed some time in order to carry out the curtailment of production agreement.

—Pennsylvania, Philadelphia. The mill of Henry Whitaker's Sons, which has not been in operation for several weeks, is now resuming operations in full.

—Pennsylvania, Upland. The mills of S. A. Crozier & Son for the first time in two years have all their machinery running on full time.

—Rhode Island, Pawtucket. The cotton portion of the Lorraine Mfg. Co. has resumed operations in full.

ANYTHING

Entire Outfits for New Mills, or small and odd items that you don't know just where to obtain, can be found at the

AMERICAN SUPPLY CO.
PROVIDENCE, R. I.

in Mill Supplies.

THE **HOLBROOK** MFG. CO.

466-470 Washington Street,

NEW YORK.

MILL SOAPS.

STEEL CASTINGS

FROM 1 TO 40,000 POUNDS WEIGHT.
Of Open Hearth, Chester or Bessemer Steel
True to Pattern. *Sound.* *Solid.*
Gearing of all kinds, Crank Shafts, Knuckles for Car Couplers.
Cross-Heads, Rockers, Piston-Heads, etc., for Locomotives.
STEEL CASTINGS OF EVERY DESCRIPTION.

CHESTER STEEL CASTINGS CO.,

Works, Chester, Pa. Office, 407 Library St., Phila., Pa.

FIRE DEFIED!!

By The American Fire-Resisting Paint.
A building protected with these goods becomes practically Fire proof.

An ocular demonstration of the fire resi-ting qualities of this paint and kalsomine will be given at our office to anyone interested. Samples, and information furnished from those who have used this paint successfully.

THE AMERICAN FIRE-RESISTING PAINT CO., 17 Broadway, New York, N. Y.

JACOB WALDER, - Paterson, N. J.
Sole Manufacturer in United States of

BRASS AND STEEL **MAILS**

Liberal Discount to Dealers.

(Continued from page 121.)

SKEIN.

8/3 carpet	12¼ to 13 cts.
8/3 slack	14 cts.
9/4 slack	13 cts.
10s double reeled	13 to 13½ cts.
16/3 slack	14 to 14½ cts.
16/4 medium	14 cts.
2-1/2 to 4s soft	12 to 13 cts.
8s to 10s "	13 to 13½ cts.

EASTERN COPS.

26s shuttle	14½ to 15 cts.
40s "	18 to 19 cts.
12s "	14 to 15 cts.
10s hosiery	14 to 14½ cts.
12s "	14½ to 15 cts.
14s "	15 cts.
16s "	15½ cts.
20s "	16½ to 17 cts.
24s "	17 to 18 cts.

Skein, ½ ct. above cops.

Cones, ¼ to 1 ½ cts. above cops.

Egyptian (carded) 4 cts. above white.

Egyptian (combed) 4 cts. to 5 cts. above carded.

Wool spun cotton yarns are moving about the same as last month. There is a very slight improvement in prices. Spinners are running but part time, and cannot get any orders ahead. We quote:

20s cut black cops	14 cts.
22s " " "	14½ to 15 cts.
12s " " "	13 cts.
15s " " "	13 to 13½ cts.

The Wool Market.

"Wool seems hardening in price throughout the world," says a market reporter, whose facilities for observation are unusually broad. There is a well-defined feeling that wool is going higher. Speculation is rife, the market is active and a few exceptionally large sales to big manufacturers are reported.

Trade is improving somewhat, but it is not so much on the present situation that many of the current deals are being consummated. The buyers are men who believe that the prospects are for better prices. As a rule manufacturers are poorly supplied with the raw material. Some of these are now realizing how long low prices have ruled and these it is who constitute the buy-

Wooosocket Napping Machinery Co.
Pat. Knot Saving Shear
with or without **List Saver.**
NAPPERS
Of all kinds, including the **French with Latest Improvements.**
WOONSOCKET, - R. I.

GEORGE L. SCHOFIELD,
DEALER IN NEW AND SECOND-HAND
MACHINERY,
123 N. Front Street, Philadelphia.
Agent for Weston Hydro-Extractor in Pennsylvania.

FINISHING MACHINERY for Brushing, Calendering, Drying, Dyeing, Fulling, Lapping, Rolling, Folding, Measuring, Pressing, Steaming, Shearing, Singeing. Blades, Spirals, Brushes furnished or repaired; Wire Looms, Forming Press for Febrille Goods, Metals or Hats. Perforating, Plate Printing, Engraving Machines. Paper Mill, Box Printers and Binders Machines.
GEO. C. HOWARD, 1783 Barker St., Phila., Pa.

Established 1844.
BENJ. BUCKLEY'S SON,
(WM. J. BUCKLEY)
GUN MILL, PATTERSON, N. J.
Manufacturer of all kinds of
SPINDLES, FLYERS, RINGS, TUBES, CAPS, &C.
FOR
Cotton, Silk, Flax, Woolen and Worsted
MACHINERY.
Roving Spindles and Flyers a Specialty.
Light Forgings. Repairing of all kinds.

IMPROVED WASTE DUSTER

For Cleaning Wool Waste. Superior to any now in use. Manufactured by the Stillman-Randall Machine Co., Westerly, R. I. Send for circular.

FACTORY SITES
FOR SALE
in the fast growing village of
DOLCEVILLE, - N. Y.
Water unexcelled for Wool Washing.
Power furnished at very low price.
Good Locations along Railroad.
Best Shipping Facilities.
FOR PARTICULARS ADDRESS
ALFRED DOLGE, Dolgeville, N. Y

ers. Another crowd—and not a small one, hesitates at present prices, except on from hand-to-mouth needs.

With easier money, increasing industrial activity and larger offerings of raw material sales are bound to be more numerous. The confidence in the Boston market up to the very eve of election was noteworthy. Even the sound money parade was scarcely sufficient to attract them from change. Not only was the trading large—the prices realized were "full" to quote from the lingo of the street.

European and Australian advices grow steadily firmer. The full force of the election has not become apparent at this writing, but it is safe to predict an upward tendency with not more than slight reactions. Sales for October in recent years follow:

	Domestic.	Foreign.	Total.
1896	22,170,200	6,149,900	28,320,100
1895	17,441,700	12,347,150	29,78-,850
1894	12.080,792	5,5 8,404	17,629,1-9
1893	12 029 016	1.646,136	13 675,152
1892	18,590,-03	7,947,900	26,538,503

The Cotton Market.

Cotton in common with everything else has shared in the general improvement following election. At this writing there has been no marked advance, owing perhaps to the fact that conservative authorities have recently been increasing their crop estimates, but the tone is, nevertheless, firm and encouraging. Still, the best posted men in the trade believe near cotton futures a profitable sale on any decided advance.

Stocks, it is true, are small and there can scarcely fail to be steady buying by the New England mills for several weeks to come, but it should be remembered that English and continental mills have been buying steadily since the earliest crop arrivals, and they take the bulk of the production.

An active market is looked forward to. With money easier and business improving, a large volume of business is assured, but with the raw material at its present satisfying quotations, speculators can hardly look for more than a scalping market. The planters are mostly on solid ground and the whole South in as prosperous condition as it has been for years. Consequently there will not be much haste in marketing cotton.

The foreign markets have been notably strong on the eve of election. Takings by Northern spinners to date, have been 350,187 bales against 319,-397 bales last year, and 173,753 in 1893. To Oct. 23d, 2,699,258 bales had come into sight, against 1,946,485 bales last year, and 1,887,551 in 1893.

Silk Yarns at Low Prices.

By their patented process, the Silk-Lour Mfg. Co., of Philadelphia, is enabled to produce pure silk yarn of every description, suitable for fancy dress and knit goods, at about the prices of worsted yarns.

We understand that this firm will produce any desired style of pure silk yarns that manufacturers may desire to substitute for worsted.

They are also making a high grade of combined silk and Australian wool yarn, which is very desirable for the knitting trade.

The extremely low prices that this firm has placed upon their yarns should insure them a very large and successful trade.

Altemus in the Bourse.

The winding and winding frame machinery of W. W. Altemus & Son, Philadelphia, make a handsome appearance on the exhibit floors of the Philadelphia Bourse. Few concerns possess greater foresight and enterprise than the Messrs. Altemus, which easily explains the wide demand for their machinery.

The Priestman Engine.

One of the most interesting exhibits of the Philadelphia Bourse is a Priestman engine in full operation. It is not a steam or gas engine, but is worked by burning a fine spray of 150 test kerosene oil (coal oil) in the cylinder, which causes expansion of air in rapid succession. Safety, no extra insurance, economy, no ashes, no steam boiler, and other advantages are claimed for the Priestman engine.

Tank Builders Busy.

Amos H. Hall, of Philadelphia, has turned out some heavy contracts during the fall months, and is beginning work on a number of orders which were contingent upon McKinley's election. He estimates for all sections of the country, and is now erecting tanks in Washington, New York, and other states.

—The James Smith Woolen Machinery Co., Philadelphia, have a large and attractive exhibit space in the machinery department of the Philadelphia Bourse. The company change their exhibit at intervals, and are now placing an entirely new lot of machinery on view.

—Rhode Island, Pawtucket. A part of the machinery has been started up in the Goff's Braid and Plush Mills.

—Rhode Island, Pawtucket. The Union Wadding Co. are making preparations to resume business.

—Rhode Island, Slatersville. The Slatersville Cotton Mills will probably resume operations November 9th.

—Rhode Island, Woonsocket. The Eagle Mill, which has been running on short time for several months past has resumed operations on full time.

—*South Carolina, Bamburg. The new mill of the Bamburg Cotton Mills Co. is finished, and preparations are now being made for starting the machinery.

—South Carolina, Rock Hill. At the annual meeting of the directors of the Globe Cotton Mills it was decided to increase the running time of the mills from half to full time.

Woolen.

New Mills.

—*Pennsylvania, Spartensburg. The new woolen mill of Edwards Brothers has commenced operations.

—*Pennsylvania, Millersburg. G. W. Kline of the G. W. Kline Co., informs us that rag and jute carpets will be manufactured in the additional new factory which we reported was being built for him. He expects to have the machinery in operation by December 1st.

Mills Starting Up.

—Connecticut, Glenville. The Hawthorn Mills have resumed operations on full time.

—Connecticut, Norwich. B. Lucas & Co 's mills are once more running full time, after a long idleness.

—Connecticut, Norwich. The Clinton Mills Co. have resumed operation in full in their finishing and dyeing department. The other departments in the mill will be started up immediately.

—Connecticut, Putnam. At a meeting held here by the directors of the Putnam Woolen Co., it was voted to start the mills up as soon as possible. These mills have been closed during the past 5 months.

—Connecticut, Rockville. The Rock Mill is starting up more of its machinery.

—Connecticut, Stafford. The Phœnix Woolen Co. have resumed operations on full time, at their mill in Hydeville.

—Connecticut, Stafford Springs. Work has been resumed in the mills of the Central Woolen Co.

—Connecticut, Thompsonville. After being idle for many months, the ingrain department of the Hartford carpet company known as "The Old Ingrain Shop," has once more resumed operations.

—Illinois, Warsaw. A report states that the Knox Hill Co. has resumed operations.

—Maine, Madison. The Indian Spring Woolen Mill is now running full time with a full force.

—Massachusetts, Blackinton. The Blackinton Co. are now running their mill nine hours per day, five days in the week. This is an increase over their former running time.

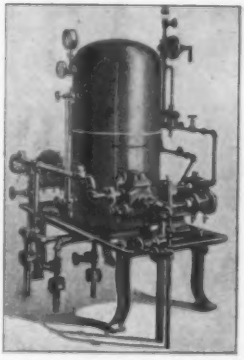
GUSTAVE P. FRESNEL,
AGENT FOR
Lyons and Paris Designers,
Keeps new sketches and designs always on hand.
125 West 56th St., New York.

BURR'S COMBINATION INDEX.
A valuable and necessary book for every office, which saves time and labor. The Index is for Ledgers, Letters, Books, Commercial Reports, and records of all kinds.
BURR INDEX CO. 336 Asylum St., Hartford, Conn.
SEND FOR CIRCULARS.

JOHN F. WHITE,
Manufacturer of
Patent Under Grids
FOR CARDING ENGINES.
38 River St., Providence, R. I.
Advantages Gained by Using Above: Cleaner stock, stronger yarn, more yarn, and less card waste.

TEXTILE MACHINE WORKS,
READING, PA.
Braiding Machines for all Purposes.
Machines for Covering Electric Wires and Cables, Packing Braiders, Gimp Machines, Spooling and Doubling Machines, Special Machinery.
THUN & JANSSEN.

Fuel Oil Furnaces.
Improved **DUPLEX SYSTEM**
for SINGEING FURNACES.



Also for Annealing, Forging, Enameling Welding, Melting, Brazing, Drop Forging etc., with
FUEL OIL.
Furnaces Designed and Built for Every Purpose.
W. S. ROCKWELL & CO.,
Constructing Engineers,
26 CORTLAND ST., NEW YORK.

ELLIOT CLOTH FOLDER AND MEASURER

For Cotton and Gingham Mills, Bleacheries, Print Works, Etc.

MANUFACTURED BY

ELLIOT & HALL,

54 1-2 Hermon St., Worcester, Mass. Send for Circular.

SAVOGRAN | CLEANS WOOL, FLOORS, ANYTHING.

INDIA ALKALI WORKS, Boston.

THE ARMITAGE MANUFACTURING COMPANY,

RICHMOND, VA.

GRAVEL, SLAG AND COMPOSITION ROOFERS.

MANUFACTURERS OF

Two and Three-ply Asphalt Ready Roofing for roofs of any description, water, acid and fire proof; more durable than metal; easily applied. Tarred Felts, Building, Sheathing and Insulating Papers, Roofing Pitch, Paving Pitch, Roof Paints and Roof Coating, Black Varnish, Ammonia, Etc. Write for Samples, Prices and Catalogues **Quality and Workmanship Guaranteed.**

TEXTILE MILL WANTED To Locate in the City of **ELMIRA, N. Y.**

Buildings for manufacturing purposes (one never been used) are located within nine blocks from center of city. Three trolley lines running near by. Steam or electric power supply. Fire hose and connections on each floor. Location is favorable for obtaining help of any kind. Railroad facilities first-class, and cheap rates to all parts of the world.

Address, P 132, TEXTILE WORLD.

FREE SITES FOR COTTON MILLS

Along the line of the Illinois Central Railroad Co. in West Tennessee, Mississippi and Louisiana are offered with cheap fuel, low-priced American labor, best of freight facilities, and, in many locations, exemption from taxation for ten years, with liberal subscriptions to stock, if desired.

Write for pamphlet "One Hundred Cities and Towns Wanting Industries," which gives in a nutshell statistics of desirable places. The undersigned solicits and will treat in confidence all correspondence with those prospecting for new locations.

GEORGE C. POWER,

Industrial Commissioner, I. C. R. R. Co.,

506 Central Station, CHICAGO, ILL.

FITCHBURG RAILROAD.

Hoosac Tunnel Route

The Short Line between

BOSTON AND

NIAGARA FALLS, CHICAGO, ST. LOUIS, CINCINNATI,

And all Points West.

Lake Champlain Route

Between

BOSTON AND

MONTREAL, OTTAWA, QUEBEC,

And all Canadian Points.

Palace Sleeping or Drawing Room Cars on all through trains.

For Time-tables, space in Sleeping Cars, or information of any kind call on any Ticket Agent of the company or address

J. R. WATSON, Gen'l Pass. Agent,

BOSTON, MASS.

—Massachusetts, Hinesdale. We have received several reports that the offer of the Hinesdale Brothers to compromise their indebtedness has been accepted, and that the mills will resume soon.

—Massachusetts, Leominster. The Leominster Worsted Co., whose mills have been running but 45 hours per week are now running 55 hours per week.

—Massachusetts, Maynard. The Assabet Mills will start up in full, as a result of election.

—Massachusetts, Millville. About half of the machinery in the mills of the Lawrence Felting Co. has been started up.

—Massachusetts, North Dana. Crawford & Tyler's factory has been started up. It has been shut down the last 2 1-2 months.

—Massachusetts, Palmer. Holden & Fuller have started their mill up on full time. The mill has been idle for some time past.

—Massachusetts, Pittsfield. Some of the looms have been started in the Bel Air mills, and the prospects are good for resuming operations in full.

—New Hampshire, Tilton. It is reported that Pillsbury's Lower Mill is soon to be started up. This mill has been in operation but very little since April last.

—New Jersey, Camden. Spruance & Birkhead, woolen spinners, are now running full time. Their plant has been closed down for 2 months.

—New York, Dryden. The Dryden Woolen Mill, which was closed down three months ago is now running a part of the machinery eight hours per day.

—Rhode Island, Woonsocket. Work has been resumed in the mills of the River Spinning Co.

—Wisconsin, Racine. The Racine Woolen Mill will resume operations Dec. 10, with a full force, on full time.

—The John Simmons Company, 106-110 Centre St., New York City, report a good business during the past few months, despite the dullness in trade so general throughout the country. The line of steam supplies manufactured by this concern is very complete, and embraces only goods of known reputation and worth. Those who do their own steam-fitting about the mill will find it a profitable course to secure a copy of the latest illustrated catalogue issued by the John Simmons Company, and order therefrom when in need of anything in their line, saving the middleman's profit.

—J. E. Rhoads & Sons, 239 Market St., Philadelphia, report a revival of demand for leather belting. They have recently booked orders for over 65,000 feet of round belting, for various large belts including electric belts of their "Volta Dynamo" brand and an extra heavy 36 inch driving belt, and contracts for equipping two new cotton mills in the South.

—Radical improvements have been made in the Park Theatre, Boston, in the way of increased fire protection. An asbestos fire curtain has been hung, supported by iron bolts and chains from the proscenium wall. The six openings in the proscenium have been protected with fire doors made by the Victor Mfg. Co., of Newburyport. The fire ventilator has been equipped with automatic fire shutters with fusible links, and will be of great value in clearing the stage of smoke and cinders should a fire occur in that section of the building.

Belt Lacing Made Easy.

One of the most simple and successful inventions for lacing belts that we have seen is being exhibited in the Philadelphia Bourse by Kelly Bros. & Spielmen, sole agents. The machine laces with a steel wire, and unites the ends solidly and with rapidity. It seems an invaluable machine for belt users.

WANTED: Desirable Accounts

One of the largest Importing and Commission Houses wants desirable Domestic and Foreign accounts. Interview or correspondence with mill owners or salesmen controlling same desired.

Address: L. W. L., TEXTILE WORLD.

WOOLEN MACHINERY WANTED.

I wish to buy two or three sets of woolen machinery complete, second-hand, for manufacturing flannels and Blankets. It must be in good order, and at a very low price. 40 x 48 cards, Davis & Furber mules, 112 inch plain looms, 3 box, one end on some of them, a rotary press, 120-inch gig, and other necessary machinery. Address, "BLANKETS," care TEXTILE WORLD.

LOOMS For Sale!

51 Crompton single box, 40½-inch reed space, and 9 English Clipper 40-inch reed space, Looms for sale. For particulars apply to

THE BERKSHIRE MFG. CO., Ltd.,

Church St., FRANKFORD, PA.

TEXTILE BOOKS, HALF PRICE.

Structure Fibres, Yarns and Fabric, price $5.00, will sell for $2.50.
Wool Manufacture (Beaumont) price $2.50, will sell for $1.25.
Fuller's Tables, price 75 cents, will sell for 37.
Cotton Manufacturing (Brooks) price $2.25 will sell for $1.15.
Cotton Manufacture (Lister) " $3.00 " " " 1.50
Possett's Technology of Textile Design, price $5.00, will sell for $2.50.
I have one copy of each. All new.
JOS. C. WILLIAMS, Box 101 South End, Boston.

"LOOK HERE, YOUNG MAN."

Do you want to learn practically how to manufacture woolen, worsted and cotton goods? If so commence at once, as I can take a few more scholars in this line. Full instructions given in Designing, Calculations and Estimations on stock, etc. Terms reasonable. Address, INSTRUCTOR, Box 719, Middleboro, Mass.

FOR SALE, SECOND-HAND MACHINERY.

Double Corliss Engine, cylinder 23x60 in. Single Corliss Engine, cylinder 20x48 in. Singles Corliss Engine, cylinder 16x36 in. Single Corliss Engine, cylinder 12x24 in. 30-40 50-80 and 100 H. P. Automatic Engines.
Large stock of Plain Slide Valve Engines, Boilers, Steam Pumps, Feed Water Heaters, Lathes, Planers, Shapers, Drill Presses, Milling Machines, Electric Motors and Dynamos, and Wood-working Machines. Let me know your wants as my stock is constantly changing. Yours respectfully, FRANK TOOMEY, 131 No. 3rd St., Philadelphia.

THE J. J. RYDER CO.
DESIGNERS ENGRAVERS PRINTERS
FINE COMMERCIAL PRINTERS.
Photo Engraving in all its Branches.
Specialists in fine Machinery and general Wood Engraving, Portraits, Buildings, etc. Artistic designs in Letter and Bill Heads, Business Cards, Display Lettering for advertising purposes, etc. Best work. Lowest prices. Electrotyping at lowest rates.
310 Westminster Street, Providence, R. I

The Textile World's Information Department

Is the BEST system of communication between manufacturers wanting men, and superintendents and overseers wanting positions.

It is in immediate charge of a practical mill superintendent, who gives personal attention to each case. There is no charge to manufacturers, nor is there any "entrance fee" to applicants, but if a position is secured a very moderate charge is made to the applicant. We will not knowingly enter the name of an incompetent or intemperate man.

Hundreds of superintendents and overseers are now satisfactorily filling positions obtained through us, and scores of the best mills use this Bureau EXCLUSIVELY, because they have found it to be the best and most satisfactory. Its methods are prompt, courteous, business-like and strictly confidential.

Correspondence solicited.

TEXTILE WORLD'S INFORMATION DEPARTMENT,
620 Atlantic Ave., Boston, Mass.

SITUATIONS WANTED.

W. H. COTTON.

A practical mill man is in charge of the Information Department and Overseer's Bureau.

The advertisers in the following columns should be addressed in care of TEXTILE WORLD, or inquiries concerning them may be addressed directly to "Information Department, TEXTILE WORLD," as full particulars of each advertiser are on file, and the addresses of suitable agents, superintendents and foremen for every branch of the textile industry will be furnished to manufacturers.

Any subscriber may file his application, and no charge is made until position is secured.

The business of this department is held strictly confidential.

The applications of good overseers in every department, who are in want of positions, are solicited.

Manufacturers are invited to use this department when in need of skilled men; each case will be handled confidentially, with promptness and judgment, and without charge to manufacturers.

WANTED. **We want a First-class Knitter** Who thoroughly understands the manufacture of ribbed underwear. We prefer to have one who is used to Leighton machinery. He must be capable of taking charge of a good sized room. We want a man of experience and temperate habits. None others need apply. Good wages will be paid, according to the ability of the man. Address "Treasurer," care TEXTILE WORLD.

WOOLEN SUPERINTENDENTS.

1085 **Designer, Assistant Designer** or Assistant Superintendent. Has experience on cassimeres, cloakings, meltons and dress goods. Will take a position anywhere in U. S. or Canada. 23 years of age.

1125 **Woolen Superintendent** wants position. A good man on cassimeres, dress goods, flannels and blankets. Has been overseer 3 years and superintendent 12 years for the same company. Age 37 and married. Will go anywhere except Canada. Good references.

1142 Position wanted as assistant superintendent or designer in woolen mill (N. E. states preferably), by young man 26 years of age, of several years mill experience and a graduate of the Philadelphia Textile School. The salary expected would be small to begin with, as a start is the chief object at present.

1055 **Woolen Superintendent or Assistant.** Superintendent and designer. Will take a position as designer in a good mill. Age 36, married. Has worked on all kinds of woolen goods, such as beavers, kerseys, cheviots, chinchillas, flocko, neys, cassimeres, medium grade worsteds serges and all kinds of nap goods. Salary governed by position.

1067 **Superintendent.** One who understands worsteds, beavers, kerseys, union cassimeres and fancy cassimeres, and is a good manager. Age 45; married. Has a good record and is well recommended.

1029 **Superintendent or Designer.** Here is a good man for a responsible position. Has worked on all kinds of men's wear, woolens and dress goods. Is 35 years old and married, and has had an experience of 10 years as superintendent and designer. Will work for salary according to size of the mill.

478 **Woolen Superintendent** wants position as superintendent of a 2 or 4-set mill. Age 41; married; now employed. Familiar with all the improved machinery. Has good references.

377 **Woolen Superintendent or General Manager.** Has been superintendent in some of the best woolen mills in N. E. Has a thorough knowledge of the manufacture of worsteds, cassimeres, beavers, kerseys and flannels. 41 years of age. Married. Has excellent references.

1023 **A Good Woolen Mill Superintendent.** Experienced on fancy cassimeres, worsteds, fancy and piece dye, cheviots, overcoatings, kerseys, beavers, cloakings, friezes, etc. Salary, moderate. Age, 38 years. Married.

1159 **Woolen Superintendent.** A first class man on carriage robes, furniture plush, bed and horse blankets. Has excellent references. Has held present position as superintendent for several years; good reasons for desiring a change. Age 39; married.

1151 **Asst. Superintendent or Designer** wants position. Age 33; married. Worked on cloakings, fancy worsteds, cheviots, dress goods and cassimeres. Can refer to past employers.

1168 **Woolen Superintendent** wants position. Would accept a position as assistant superintendent or designer in a good mill. Is a good weaver and designer on fine flannels, silk, cotton ladies' dress goods, cheviots, cloakings, beavers, kerseys, etc. Knowles, Crompton, Davis & Furber looms. Age 45; married. Is at present in a good mill. Refers to very reliable parties.

1170 **Woolen Superintendent** wants a position as superintendent and designer of a small mill, or superintendent of a large mill. Age 54; marrried. Don't want a position in any of the Southern or Western states. Has worked on a great variety of goods, and can refer to reliable parties.

COTTON SUPERINTENDENTS.

1114 **Superintendent and Overseer,** wants position on cotton goods, has had a first-class experience, and can furnish first-class references. Will go anywhere; age 39 and married; salary reasonable; is a first class man on seamless bags.

1139 **Cotton Superintendent.** Position wanted by competent man, now in one of the best fine colored and fancy mills in the country; age 33; married. Will go anywhere. Refers to present employers.

758 **Gingham Superintendent** with experience on fine dress goods and shirtings. Age 38, married, and a desirable man.

934 **Ginghams, cotton dress goods,** shirtings, cotton and woolen, both fine and coarse, also cheviots. High up in his knowledge of these goods. Experience gained in Scotch mills. Is a practical dyer and finisher, and a practical designer. Desires a position as agent or superintendent, or as superintendent and designer. Age 42; married.

863 **Superintendent** in cotton mill, now employed. Wants position as superintendent or superintendent and designer, where cassimeres, denims, ticks, cottonades, cheviots, shirtings, etc. are manufactured. Age 45; married. Will not go South. Refers to good men.

1016 **Very desireable man,** wishes a superintendency. Strong point weaving, spooling, warping and dressing, but has also done good work in designing. Shirtings, sheetings, ginghams, ducks, demins, etc., etc. Is 35 and married.

1108 **Cotton Superintendent** or would accept position as overseer of large mule spinning department. Has good references and a first-class record, and is a thorough mechanic; familiar with all kinds of yarns, especial hosiery and prints; age 40 and married.

1133 Is a good man on cotton goods; age 43; married; American, wants position as superintendent. Refers to first-class companies; is well posted on various kinds of machinery.

1144 **Agent or Superintendent.** Has had a good experience in every department of a cotton mill, and understands manufacturing ducks, carpet yarns, hosiery yarns, seine twine and netting and various other kinds of white goods. Age 31; single. Refers to past employers.

WOOLEN CARDERS.

892 **Carder.** Has had experience on light and heavy cloth goods and knit underwear. Has worked in good mills and is a very practical man. 50 years of age, married. Will go anywhere. Good references.

710 **Low stock his strong point,** but has carded all kinds of stock. Age 40; married. Salary $3 00.

1082 **Woolen carder experienced on** all classes of underwear. Has worked for eight years in one mill, 29 years of age and married. Good references.

1030 **Woolen Carder.** A first class man with good references and wide experience desires position as overseer of woolen carding. Has worked on from fine wool to low shoddy. Age 27. Married and can take position at once. A trial will show that he is the right man.

1136 **Overseer of Woolen Carding** with good English references. Wants position. Used to all-wool, cotton and wool and shoddy. Age 51; married. Can take position at once.

579 **Carder of the first rank,** has worked in the very best mills, well posted. Strong point; Australian and low stock.

1147 **Woolen Carder.** Age 45; married. Overseer 18 years in one place. Long experience on all wool, wool and cotton mixed, shoddy, etc., etc. Will go anywhere except Canada.

COTTON CARDERS.

910 **Is a good carder** on plain, colored and fancy white stock. Age 41. $2.50 and up.

1135 **Second Hand of Cotton Carding** and combing. Wants position. Has first-class references. Age 28.

1001 **Has Carded** for ginghams, sheetings, checks, prints, etc., and is first class. Age 34, married. Wages $2.50 and up.

1072 **Cotton Carder.** Experienced on mixed and colored hosiery and fine yarns, and print cloths. Has worked wholly in New England, but will take position anywhere.

WOOLEN SPINNERS.

1112 **Overseer of Woolen Spinning** wants position. Has first-class references. Age 37. Wages reasonable. Will accept second hand's position.

1111 **Overseer of Spinning** wants position. Age 48 and married. Has good recommendations from last employers. Has worked on cassimeres, wool shoddy, fancy elderwown and flannels. Will go anywhere.

1152 **Woolen Spinner** wants position as overseer or 2d hand, in Southern or Western States, or Pennsylvania. Age 20; single. Understands Johnson & Bassett operators and mules. Has worked on a variety of goods. Good recommendations as to character and ability.

884 Wants position as overseer of woolen spinning. Age 45; married. All classes of goods; now employed. Best of references.

1097 **Woolen Spinner** on stock for cassimeres, dress goods and hosiery yarns. Age 30; married.

967 **Woolen Spinner.** Age 28; single. Wants position where there is an opportunity to rise in the business.

COTTON SPINNERS.

1123 **Overseer of Spinning** wants position. Understands Parr & Curtis and Lee mules, and is familiar with all kinds of frames, also spoolers and warpers. Will go anywhere. Age 47; married. Can refer to past employers.

1128 **Overseer of Ring Spinning.** French. Age 28; single. Prefers New England States. Experienced on Mason and Whittin frames. Has had a good experience as second hand. Refers to past employers.

1158 **Overseer of Ring Spinning,** spooling, warping and slashing wants position on white work, fine or coarse. Age 46; single. Will go anywhere. Good references. Familiar with Mason, Bedford, Lowell and Fales & Jenckes machinery.

1068 **Cotton Ring Spinner.** Understands spooling, warping and twisting. Has worked on varns from 4s to 70s. Age 30 years. Will take good second hand job. Salary from $2 00 to $3.00 per day.

1036 **Learnt his trade as spinner in** one of the best mills in Mass. Has worked fine and coarse, colored and white goods; 14 years experience. Is 38 years of age, married. Good references. Will work for $3 50 per day at the lowest.

1121 **Overseer of Ring Spinning,** wants position. Can run spinning, spooling, warping or reeling. Good references. Age 34 and married.

1167 **Overseer of Cotton Spinning,** Mule or Ring. Also spooling, warping or slashing. Age 46; two mill hands in family, girl for drawing-in room, boy for spinning room. Good references. Don't want a position in Pennsylvania, Canada or the Western states.

1171 **Overseer of Cotton Ring Spinning.** Age 25; good references. Has made yarns from number 8s to 100s. A good manager of help.

COTTON WEAVERS.

1127 **Overseer of Weaving.** French. Age 35; married. Understands sheetings, drills and prints. Will go anywhere. Out of work; mill stopped. Refers to past employers.

176 **Wanted.** A position as overseer of weaving, second hand or loom fixer, either in a cotton, woolen or jute bagging mill, by a faithful, sober, steady man, fully capable in either of the above positions. References furnished as to character and experience.

1113 **Overseer of Weaving** woolen or cotton goods; age 30 and married. Will work for moderate pay until ability is proven. Will go anywhere. Has a thorough knowledge of box looms and plain. Can furnish good references if required.

1110 **Overseer of Cotton Weaving,** fancy or plain. Age 42; German. Wants position as overseer, or will take second hand's position. Has had charge where first-class goods are made. Good references.

WOOLEN WEAVERS.

1130 **Overseer of Woolen Weaving** wants position. Would accept 2nd hand's position in a good mill. American; protestant; age 36; single. Good man on Knowles fancy and plain looms, also Davis & Furber. Cassimeres, worsteds, meltons and flannels. Will not go South, West or Pennsylvania.

819 **Overseer of Woolen Weaving** wants position. Age 38; married. Understands worsted and plain goods, beavers, kerseys, cassimeres, etc. Can furnish good references.

1047 **Overseer of Woolen Weaving.** Wants position in N. E. States only. Age 30; married. Good man on cassimeres, kerseys and cheviots. Will work for reasonable salary.

1008 **Wants boss job in flannel mill.** Northern New England preferred, also a good man for dresser or fixer, has worked on flannels, serges, cheviots, fancy dress goods. Is 34, married.

1115 **Overseer of Weaving** wants position in woolen mill; age 50 and married; mill stopped, cause of being out of a position; is a reliable man, first class references; has worked on dress goods, carriage cloths, blankets, etc.

1172 **Wants an Overseer's Position.** Has had charge of weaving and dressing, and is a designer. Crompton, Knowles or Gilbert looms. Two workers in family. Has first class references.

FINISHERS.

896 **Woolen Finisher.** 30 years of age, married. Has worked on cassimeres, dress goods, worsteds and cheviots. Good references.

1041 **Woolen Finisher.** Has had experience on fancy and piece dyed goods, cassimeretes, cheviots, worsteds, kerseys and dress goods. Wants position as overseer or second hand in New England States. Age 26 years. Will work for $2.50 per day.

592 **Knit Goods Finisher.** Is desirous of obtaining a position as superintendent or overseer of finishing and seaming rooms, in a mill making knit goods on circular machines. Has had a long experience in manufacturing, and understands the business in all its branches. Age 42 years, married.

1161 **Woolen Finisher** wants position. American; age 37. Don't want to go to Southern or Western States. Has had a thorough experience on cheviots, cassimeres, broadcloths, mohairs, beavers, cloakings, overcoatings, etc. Good references if required.

1084 **Knitter and Finisher.** Out of work owing to the mill being stopped. Age 28; married. Ladies' and gents' cotton or woolen shaped bodies, etc. Wants position in New England States or New York.

228 **Is an A1 Woolen Finisher.** Age 36; married. Has been employed in two of the very best mills in New England, and refers to them as to character and ability.

DYERS.

1132 **Boss Dyer in Cotton, Woolen,** or Mixed Hosiery, or underwear mill; age 45; married; 9 years overseer in large knitting mill in America; 14 years overseer in Nottingham, England. Thoroughly acquainted with all kind of hosiery and underwear, also raw stock, skein or garment dyeing. Good references from former employers.

1149 **Woolen Dyer.** American; age 44; married. Familiar with wool and worsted yarns, piece dyeing, cotton, cotton yarns, shoddy and extracts. Good references.

1146 **Bleacher and Dyer** wants position. Age 35 and married. Is highly recommended by reliable manufacturers; experienced on all classes of underwear; also skein yarns.

1107 **Dyer,** wants position. Has worked on indigo vats piece dyes, ram cotton and wool; age 35 and married; refers to former employers. Prefers Middle or New England States. Can take position at once.

1145 **Overseer of Dyeing** cotton. Accustomed to cotton thread, cotton, yarn and chaine warp. Has held the position of overseer in first-class mills and has a general knowledge of cotton dyeing. Age 50, married. Now open for an engagement; have references.

1169 **Dyer.** Woolen goods, such as all-wool and union cassimeres, chinchillas, doeskins, kerseys, and worsteds, fancy and plain. Wishes a position in the New England States, New Jersey, New York or Pennsylvania. Age 40; married. References if desired.

1165 **Dyer,** wants position on cotton goods, ginghams, stripes, and cotton goods in general, long and short chain. Understands sizing. Southern states or Canada preferred. Now in the South. Age 37; married.

1166 **Dyer** on wool or cotton piece goods and raw stock, cotton and silk noils, and mixed fibres and knit yarns. Age 40; married. Has had a good experience, and refers to good parties.

744 **Dyer** on worsted piece, raw wool and cotton. Has a good record. Can refer to present employers. Age 42; married. A reliable man; reasonable salary.

KNITTERS.

1150 **Knit Superintendent, or Finisher,** wool or cotton. Age 28; married. Is a thorough man on all kinds of underwear, and understands all kinds of sewing machines. Refers to past employers.

1137 **Superintendent** in knitting mill wants position on knit underwear. Thoroughly understands latch needle, Thompkins Bros., Nye & Tredick, Scott & Williams and Crane Mfg. Co.'s machines for plush and stockinette. Has first class references as to character and ability. Age 29; married.

1131 **Manager of Knitting Mill,** or will accept position as finisher and shipping clerk; age 38. Has worked on cotton and wool, flat and fleece, also rib goods. Familiar with many kinds of machinery. References from first class men.

1129 **Overseer of Knitting** wants position. A good man on latch needle knitters. Understands sewing machines. Has worked on novelty swiss rib underwear and is a thorough man on Scott & Williams and Nye & Tredick machines. Wages reasonable; age 30.

1024 **Overseer of Knitting.** Is at present employed, but desires to change. Has had over six years' experience on wool and cotton, heavy and light. Will accept any reasonable salary.

915 **Superintendent of Knitting Mill** making ladies', children's and men's cotton and wool seamless hosiery, wants position. Age 25. Familiar with nearly all makes of machinery. Refers to his past and present employers.

549 **Hosiery Superintendent.** Now employed in a first-class mill; wishes to change. Don't want a position in the Southern States or Canada. Has started five new knitting mills during the past ten years. Is an American, 31 years of age and married. Familiar with all kinds of machinery and has first-class references.

1163 **Knit.** Good man for hosiery mill; understands buying, selling and finishing. Has had first class experience, and can furnish first-class references. Would accept position as travelling salesman.

1164 **Wants Position** as superintendent of hosiery mill, or overseer of woolen carding and spinning. 35 years of age; 9 workers in family. Has good references, and has had a good experience. For further information address No. 1164, care Guild & Lord.

MISCELLANEOUS.

1021 **Worsted overseer** of spinning and drawing, or superintendent. Mohair and long and short wools.

840 **Beaming or Charge of Beaming.** Has worked on ginghams, tickings, shirtings and dress goods. Age 29; married; salary as beamer $2.50; in charge $2.75.

1044 **Overseer of Boarding and Finishing** Hosiery. Experienced on cotton, woolen and mixed, seamless and fashioned goods. Will work for two dollars per day. Age 41 years, married. Good references. Will go anywhere in the United States, excepting the West.

533 **Situation wanted** as superintendent in flax, hemp or jute mill. Can make all kinds of yarn, threads, sail twines. Best of references as to character and ability. Twenty years experience in the same line, both wet and dry spinning.

1144 **Salesman** wants position as traveling salesman for dyestuffs, mill supplies, oils, etc., in which line he has had a good experience. Has first-class letters of recommendation from past employers, and others; age 45; widower.

1141 **Overseer of Wool Sorting** wants position. Understands sorting and grading in all its branches; 20 years experience as boss sorter. Can give the best of references from past and present employers. Is a good judge of the shrinkage of wool, and understands the selection of wool in market for mill. Has six workers in family.

1087 **Overseer of Beaming, Designing** or Weaving. 35 years of age. Married. Has worked on dress goods, silk striped shirtings, pantaloon goods, ginghams, etc. Highly recommended. Will go anywhere in the United States.

998 **First-Class Sewing Machine Fixer** and Finisher in knitting mill. Has worked on all kinds of shirts and drawers. Furnishes best of references. 45 years old, married. Wages $2.50 to $3.50 per day.

1155 **Wool Sorter.** Understands grading all sorts of wool. 24 years of age, and single. Will go anywhere, excepting Western States. Can take position at once.

887 **Overseer of Spooling** in a knit or cotton mill. Is competent to take superintendency of a knitting mill. Is experienced principally on fine underwear. 33 years of age; married. Will not go South or to Canada.

1124 **Bleacher** wants position. Age 50; married. Has been employed in a first class bleachery for several years, and can furnish good references. Will go anywhere. Wages moderate.

1156 **2nd Hand of Dyeing** or overseer of washing and bleaching wants position. Familiar with knit goods, wool. Age 33. Don't want a position in Canada or the Western or Southern states. Can take position at once; good references.

1162 **Good Man for Beaming Department.** On heavy sized, plain calicoes and colored cotton goods, twills and sheetings. Will go anywhere. Age 33; married. Good references.

1157 Wants position. Has a general knowledge of all departments in a cotton mill, and can fill most any position. Has highest of references; age 26, married.

1119 **Salesman,** wants position selling dyestuffs. Is a thoroughly posted man in this line; can refer to past employers. Will go anywhere. Age 41 and married.

193 **Woolen Finisher of first rank,** all classes of woolens from loom to case. Age 44; married.

B. F. STURTEVANT COMPANY,

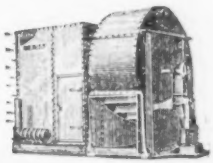
MANUFACTURERS OF THE

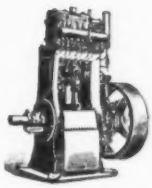
Sturtevant Blowers, Etc.,

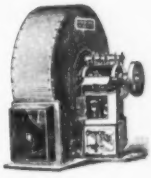
Boston, Mass., U. S. A.

The

STURTEVANT SYSTEM







for HEATING and VENTILATING TEXTILE MILLS.

for DRYING and HANDLING RAW STOCK.

for DRYING, TENTERING and OXIDIZING PLANTS.

for Removing STEAM from DYE HOUSES, SLASHERS, DRY CANS, etc., etc.

for Removing waste from FRENCH NAPPERS and collecting same.

for FORCED or INDUCED DRAFT on BOILER PLANTS.

SPECIAL BLOWERS AND ENGINES FOR EVERY DUTY.

Plans, Estimates and Catalogues Cheerfully Furnished.

B. F. Sturtevant Company,

34 Oliver Street, Boston, Mass.
131 Liberty Street, New York, N. Y.
135 North Third Street, Philadelphia, Pa.
16 South Canal Street, Chicago, Ill.
75 Queen Victoria Street, London, E. C. Eng.
21 West Nile Street, Glasgow, Scotland.
87 Zimmerstrasse, Berlin, Germany.
2 Kungsholmstorg, Stockholm, Sweden.

CEISENHEIMER & CO.
189 Front St., New York.
Branch Offices: 183 Milk Street, Boston. 31 South Front St., Philadelphia.
K. OEHLER'S

ANILINE COLORS, ANILINE SALT,
BLOOD ALBUMEN,
DYE STUFFS. DYE WOOD EXTRACTS.

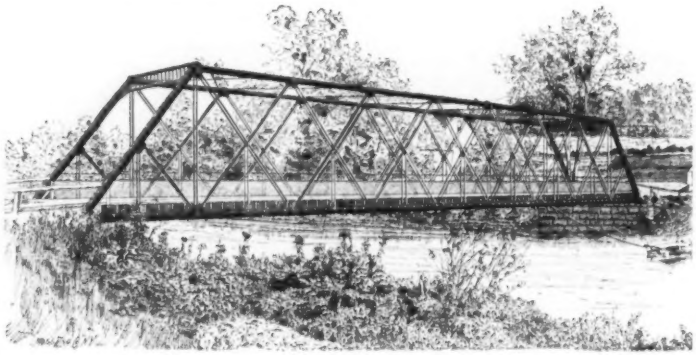
FRANKLIN H. KALBFLEISCH CO.
Manufacturing Chemists.
80 & 82 William St., New York.
Send for particulars of The Simplex Acid Pump.

Aqua Ammonia, Acetic, Muriatic, Nitric and Sulphuric (brimstone) Acids. Iron, Tin, and Copper Salts and solutions, Glauber's Salt, Epsom Salts, Sulphate of Soda, Phosphate of Soda, and a general line of Chemicals.
WRITE FOR QUOTATIONS.
You cannot afford to be without one, for drums, carboys, or barrels.

Chas. M. Jarvis. Pres. & Chief Engineer. Burr K. Field. Vice-President. Geo. H. Sage. Secretary. F. L. Wilcox. Treasurer.

THE BERLIN IRON BRIDGE CO.,

ENGINEERS, ARCHITECTS, AND BUILDERS OF IRON AND STEEL STRUCTURES.



The above illustration is taken direct from a photograph, and shows the construction of a Riveted Lattice Highway Bridge designed and built by us at Winchester, N. H. It consists of one span of 145 ft. with a roadway 16 ft. wide in the clear.

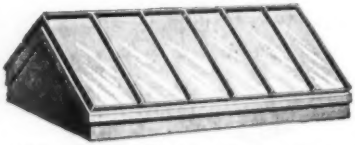
☞ Send for Illustrated Catalogue.

OFFICE AND WORKS:
EAST BERLIN, CONN.

JOHN W. FERGUSON,
Builder and General Contractor.
Office, Paterson Nat. Bank, Paterson, N. J.
Mill Building a Specialty.
References made to some of the largest mills owners in the Middle States, including Clark Thread Co., Newark, N. J., Barbour Flax Spinning Co., Paterson, N. J., and others.

HOLLISTER BROS.,
Fine Wool Wastes.
Selling Agents for
Victor Delobel, Tourcoing, France.
Office, 160 5th Ave., New York.

Metal Skylights



Absolutely no leakage from any source: no dripping or sweating; fire-proof; ventilating.
E. VAN NOORDEN & CO.,
383 Harrison Ave., Boston, Mass.

A. Klipstein & Co.
Dyestuffs & Chemicals
Fast Alizarine Colors
For Wool a Specialty.
122 Pearl Street, NEW YORK.
283-85 Congress Street, BOSTON.
120 Arch Street, PHILADELPHIA.
124 Michigan Street, CHICAGO.

Est. 1855. **WARREN CHEMICAL & MFG. CO.** Inc. 1858.
45 Fulton Street, New York, U. S. A.
ROOFING.
Warren's Anchor Brand Natural Asphalt Roofing;
Tile and Gravel Roofing;
Asphalt Floors, Driveways, Etc.